ENGINEERING
NEWS-RECORD

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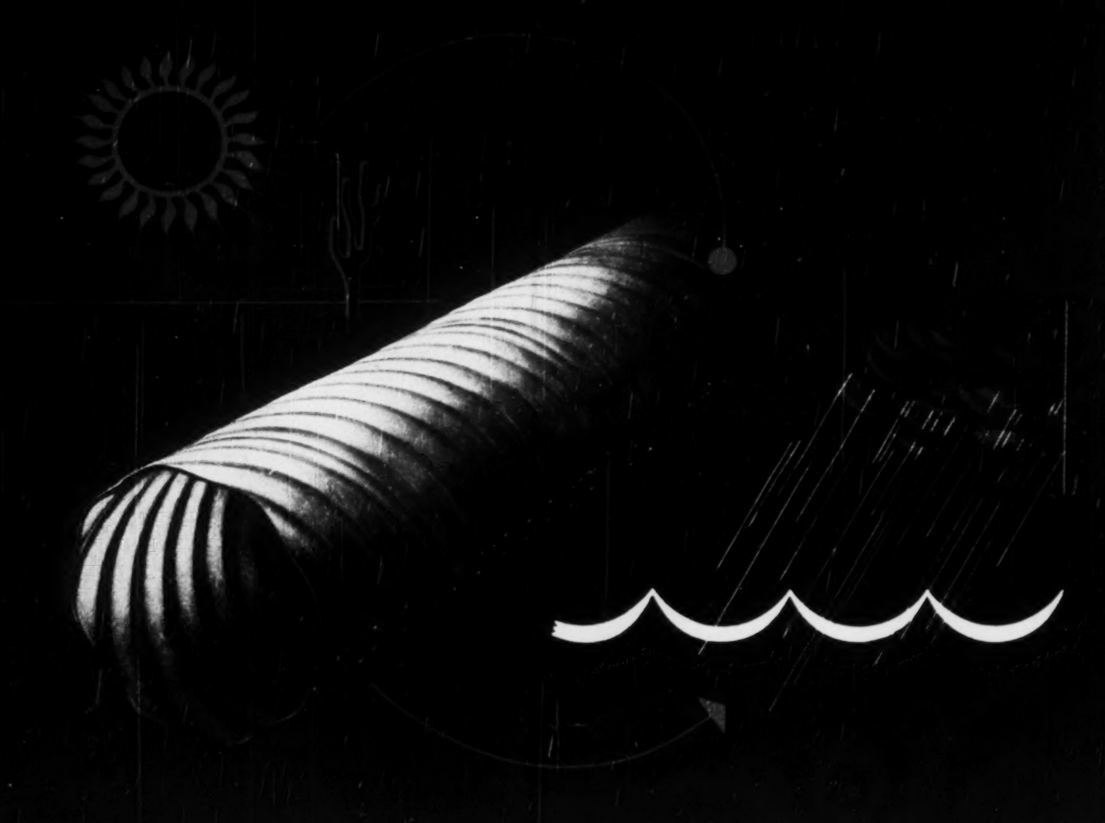

They stopped a flood on dry land

Flooded subgrades often caused heavy maintenance expense on highways, airports and railways, even when the surface was dry as a bone.

To remove this excess water permanently and economically Armco engineers developed HEL-COR Perforated Pipe.

Made on automatic machines, this pipe meets all the needs of a first class subdrainage system. It is low in cost, easy to handle, and durable. It has ample corrugated metal strength to withstand shifting soils, frost action or the impact and vibration of heavy loads. Scientifically placed holes collect unwanted water, which is drained off along the pipe invert. Subgrades become dry and stable; maintenance costs go down.

Providing better products to meet specific needs has been standard practice at Armco for more than 40 years. A few examples are Spiral Welded Pipe, FLEX-BEAM Guardrail, STEELOX Buildings and MULTI-PLATE Bridges.

Today you can bring your drainage and construction problems to Armco with full assurance that you will receive all the benefits of long experience, extensive research facilities and a real interest in helping you solve these problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual, why not talk it over with us.

ARMCO

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B.F. Goodrich

Working on the levee with 33-ton loads —this job calls for Super Traction!

WORKING on a levee enlargement job, the bottom-dump Euclid shown above is being loaded with over fifteen cubic yards of fill dirt from a borrow pit. Add an equipment weight of 35,700 pounds and this king-sized load represents a real traction job. When you consider that the thirty-three tons must be worked over soft, sandy loam — you have a job for super traction!

That's where the B. F. Goodrich Super Traction tire takes over. Notice the wide, deep footprint left by these tires — especially designed for jobs where real pulling power is needed in sand, loam, mud and soft dirt. The deep cleats take a big bite, yet this tire is built *wide* to "float" as it rolls. Designed for drive wheels, it serves equally well on free-rolling wheels in *reversed* position. That's the success story of the BFG Super Traction.

In addition to a longer-wearing tread compound, all B. F. Goodrich off-the-road tires offer you the exclusive protection of a *nylon shock shield* (double in the larger sizes). Layers of nylon cord are built into the tire between the tread and the rayon cord body. This shields the backbone of the tire against shocks and costly bruise breaks.

Such patented protection as the nylon shock shield is yours at no extra cost when the B. F. Goodrich brand is on your off-the-road equipment. There's a specially-designed, deep tread for every job.

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ENGINEERING NEWS-RECORD

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Volume 145 OCTOBER 12, 1950 No. 15

WALDO G. BOWMAN
Editor

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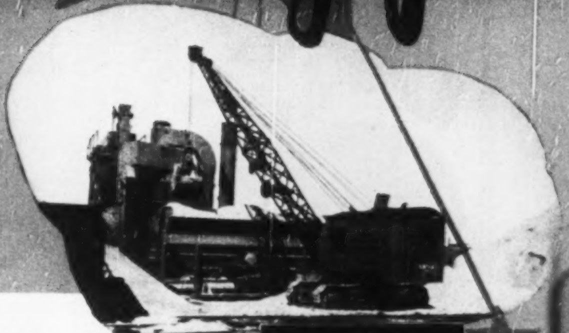
CRANE

WEIGH *all* the features in the Shovel, Crane, Dragline, Pullshovel or Truck Crane you intend to buy! Remember that it takes more than one feature to make a piece of equipment profitable to you. It isn't a type of crawler, a type of control or a type of drive that you want. It is high output! That's what makes money — and you want the combination of advantages that makes high output possible.

Weigh all the features in the equipment you are considering. Other equipment you will find is often spoken of as "A Good Crane", "A Good Dragline", "A Good Shovel or Pullshovel" but Northwest is universally recognized as a leader whether operating as a Shovel, Crane, Dragline or Pullshovel. You can't have Northwest advantages unless you have a Northwest!

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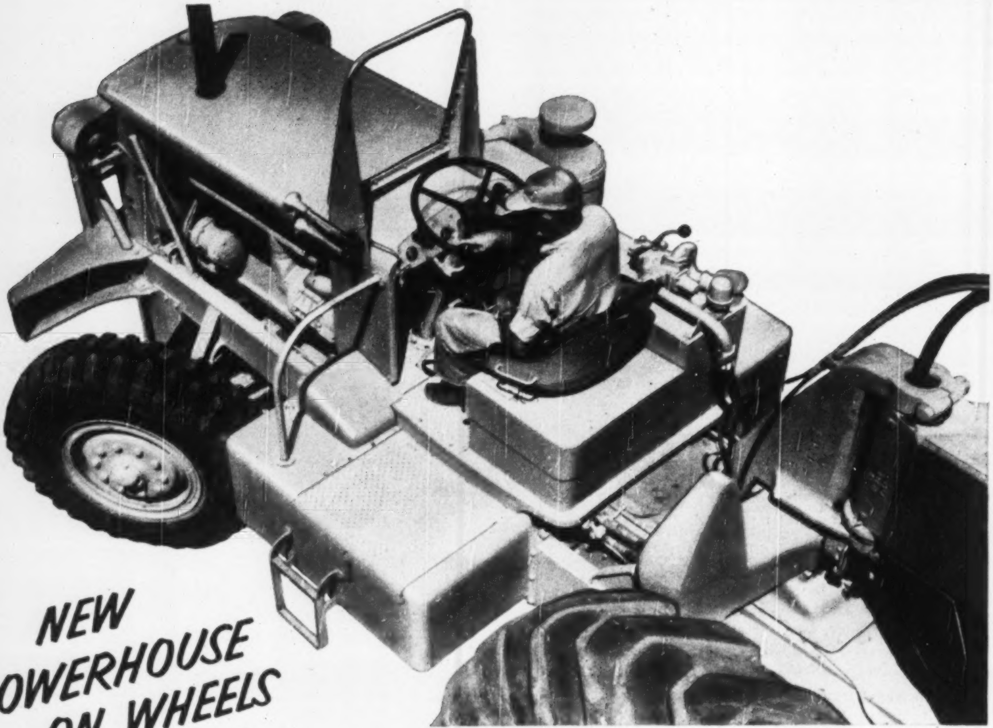

NEW POWERHOUSE ON WHEELS HAS

SAGINAW HYDRAULIC STEERING

In the construction field this month, interest will center on two high-speed, long haul and high-capacity earth-moving machines by Caterpillar Tractor Company equipped with Saginaw hydraulic steering.

The new units are the four-wheel Diesel tractor-wagon combination, the "Cat" DW20 Tractor with W20 Wagon and the "Cat" DW21, a two-wheel Diesel Prime Mover equipped with a No. 21 Scraper.

Saginaw Hydraulic Power Steering

Easy operation of the steering wheel for short turning is accomplished through Saginaw shockless worm and recirculating ball nut steering, with hydraulic booster that follows the natural "feel of the road" hand guidance.

A non-stop turn is negotiated in a width of 50 feet. Heavy steel stops prevent gooseneck from jackknifing.

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Millions of applications of its recirculating ball principle in the automotive, airplane and other industries have established *Saginaw Steering Gear* leadership. Our engineering service is available to motor and equipment manufacturers who require ease of operation and precise control in the steering of vehicles or the movement of mechanisms.

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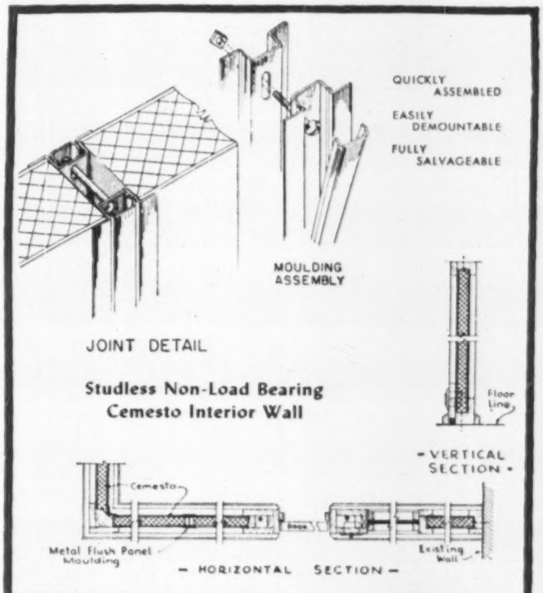
Cemesto* speeds work, cuts cost of building interior walls!

Cemesto combines amazing structural strength, high insulation value, interior and exterior finish—all in a single fire-resistant panel that's quick and easy to apply!



These details of interior walls erected with Cemesto Panels indicate the cost-cutting, space-saving simplicity which this modern marvel of building materials makes possible in all types of construction.

You simplify construction, save time, reduce both labor and material costs ... when you build interior walls with 4' 0" wide Cemesto Insulating Structural Panels. No other single building material combines all these advantages and economies:

Cemesto Panels give you remarkably strong, durable, handsome partition walls. They save space, *increase usable room area*—because a single thickness of Cemesto replaces ordinary walls up to 6" thick.

Cemesto Panels are quick and easy to put up, thanks to new-type metal moldings and "snap-on" fastenings now available. These do away with unsightly projecting battens, provide more attractive, flush-type partitions.

What's more, Cemesto Panels require no decoration. Left natural, their smooth, stone-gray surfaces provide permanently maintenance-free interior and exterior finish, with a light-reflection value of 58%. Cemesto Panels have high *built-in* thermal insulation value. Used on both sides of wood framing they reduce transmission of noise from room to room. And they are easily demountable, *fully salvageable!*

Cemesto Panels Offer Many Unique Advantages

Cemesto Panels are strong, rigid, pre-formed units made of laminated panels of Celotex cane fibre insulation—to which hard, non-combustible cement-asbestos facings are bonded on both sides by a highly vapor-resistant, moisture-proof adhesive.

They are light and easy to handle, yet have amazing structural strength. And their insulating core is protected by the exclusive patented Ferox* Process against fungus, dry rot and termites.

Widely used for curtain walls and roof decks, as well as partition walls, Cemesto panels do more than speed erection and reduce costs. They also *insulate efficiently* for but little more than the cost of ordinary *un*insulated construction!

Cemesto Panels Are Amazingly Versatile

Cemesto Panels resist fire, weather and wear—*they're a "life of the building" material!* Can be worked with ordinary tools on the job, or pre-cut at the mill for faster application. Quickly, easily attached to steel framing with metal clips, or to wood framing or wood members with nails.

Cemesto Panels make possible important economies in the design, construction and maintenance of every type building ... from modest homes to giant industrial plants. Almost 20 years of varied use in all climates, all over the world, prove their stability, performance and permanence. Discover how they can help *you* build better, faster ... *and at lower cost.* Mail coupon below for full information!

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Fuel consumption and engine maintenance costs come down when you lubricate heavy-duty gasoline and Diesel engines with *Texaco Ursa Oil X★★*. It cleans as it lubricates.

Maintenance costs for crawler track mechanisms are less when you use *Texaco Track Roll Lubricant*. Parts last longer because dirt and moisture are sealed out.

You can simplify your lubrication procedures and reduce costs all around by using Texaco Products. A Texaco Lubrication Engineer will gladly give you full details. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

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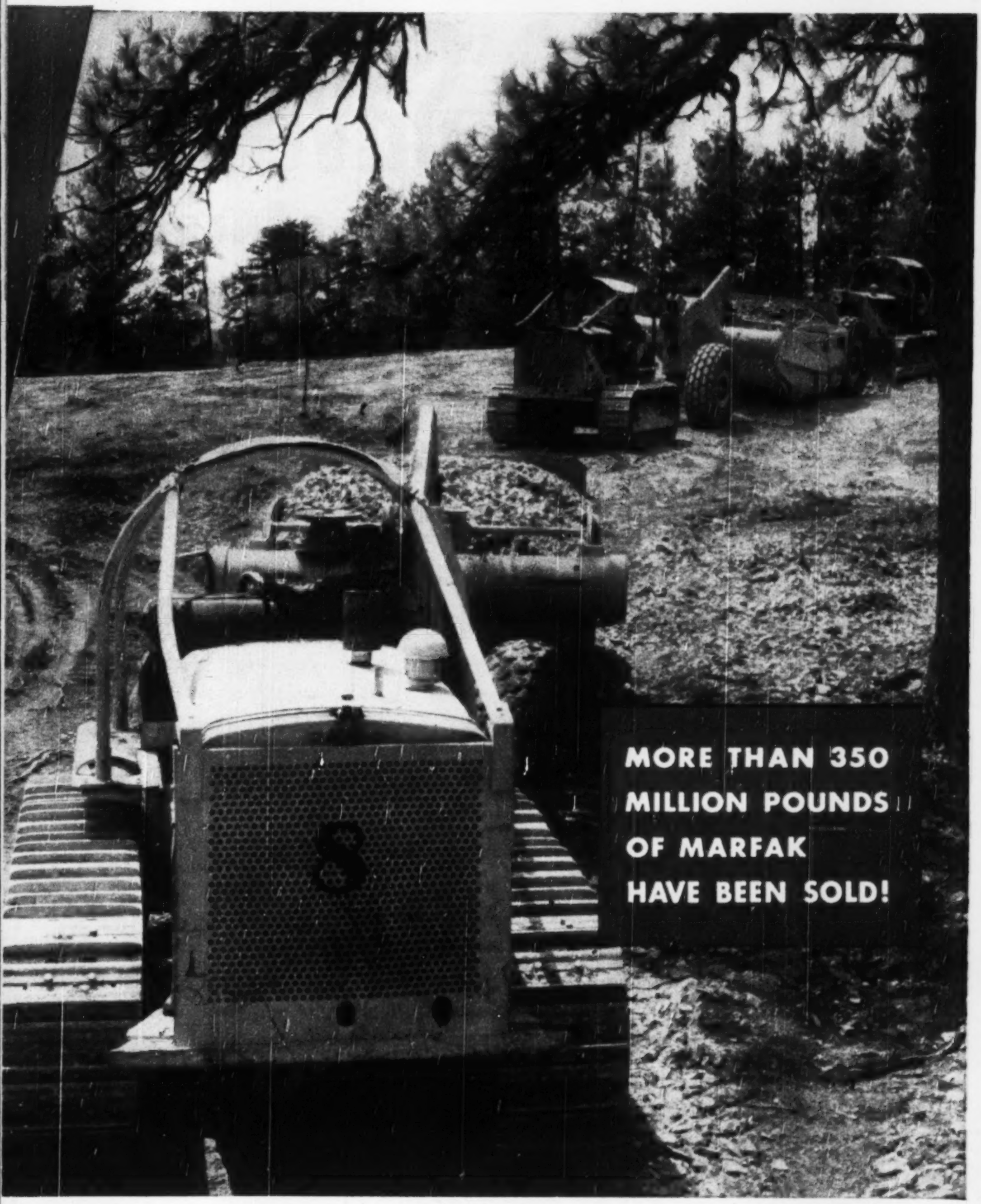
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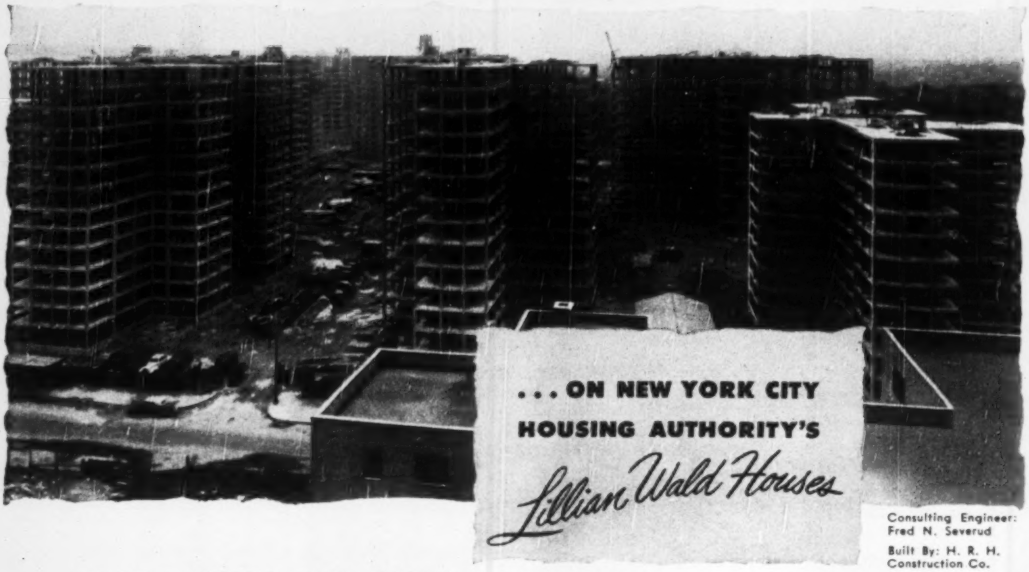


. . . ON NEW YORK CITY HOUSING AUTHORITY'S
Lillian Wald Houses

Consulting Engineer:
Fred N. Severud
Built By: H. R. H.
Construction Co.

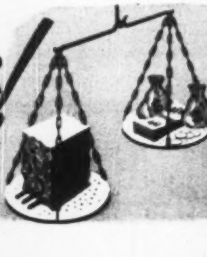
7.2 % of TOTAL COST SAVED with Reinforced Concrete Framing

When this huge project was being planned, the New York City Housing Authority had two alternate designs prepared—one with reinforced concrete framing, the other with structural steel. The lowest reinforced concrete bid was *$880,000 less* than the lowest bid using structural steel. Consequently, reinforced concrete was used for all 16 buildings.

Reinforced concrete is not only a lower cost material for building frames and floors, but it has many other advantages. It provides a rugged, durable monolith that is inherently firesafe, as well as highly resistant to wind, shock, and quakes. Equally important, it requires less time to erect. Reinforcing bars, cement, and aggregate are readily available.

On your next building, it will pay you to consider reinforced concrete.

Compare!



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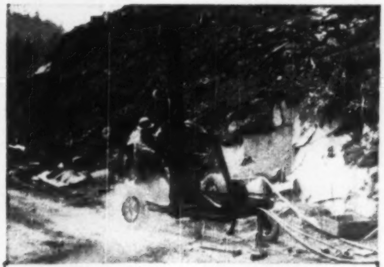

***OREGON**

It's another Blue Brute UMW Wagon Drill. Ready to swing into action at any angle, it is here helping to cut through a road out where the timber grows tallest. The Kuckenberg Construction Company of Portland, Ore., are the owners and the report from this firm says they **"wish all their other machines on the job were as good . . . and are going to change to Blue Brutes in future replacements."**

***PENNSYLVANIA**

A 315' Portable Compressor and UMW Wagon Drill, one of many Blue Brute teams owned by Cramer Construction Co. of Lebanon, Pa. Pres. G. B. Cramer writes: **"We have used Blue Brutes for several years, and on our Lebanon Veterans' Hospital job have five Blue Brute Compressors powering Worthington Wagon Drills and Rock Hammers. As evidence of their entirely satisfactory performance we recently purchased another 315' Blue Brute Compressor."**

***OHIO**

In Waterville, Ohio, the Crawford Steel Construction Co., Inc., of Cincinnati, erected the structural steel on the new highway bridge across the Maumee River. Company official J. A. Crawford says: **"Our 210' Blue Brute Compressor is efficient, well constructed and rugged. It has given us excellent service, and we are more than willing to recommend it highly . . . This first experience with your products is evidence to us of Blue Brutes' superiority.**

***WISCONSIN**

Opening up a new limestone quarry in Sussex, Wisconsin, is easy work for these rugged, hard-hitting Blue Brute team-mates. The fast, versatile UMW Wagon Drill is drilling 6-foot holes for explosive charges. Power source is a 315' Blue Brute Compressor, that gets all the air out of every drop of fuel. Vice-President Lloyd Wolf of the Quality Limestone Corporation, reports: **"After thorough investigation we decided Worthington equipment was best . . . They are fine machines."**

From the Atlantic to the Pacific you'll find Blue Brute owners — on every type of construction project, from the smallest to the largest — glad to tell you of the cost-cutting, trouble-free performance that is helping make estimates pay handsomely.

There are a lot of sound reasons for this country-wide acclaim — all adding up to the fact that *there's more worth in Worthington*. Your nearby Worthington-Blue Brute Distributor is ready with those reasons, and can make immediate deliveries. See him, or write us direct.

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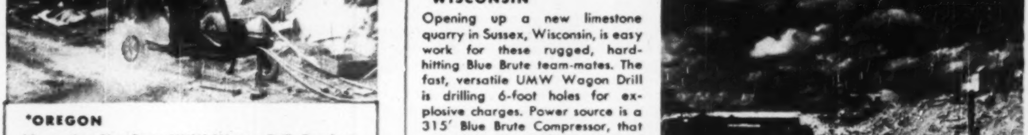
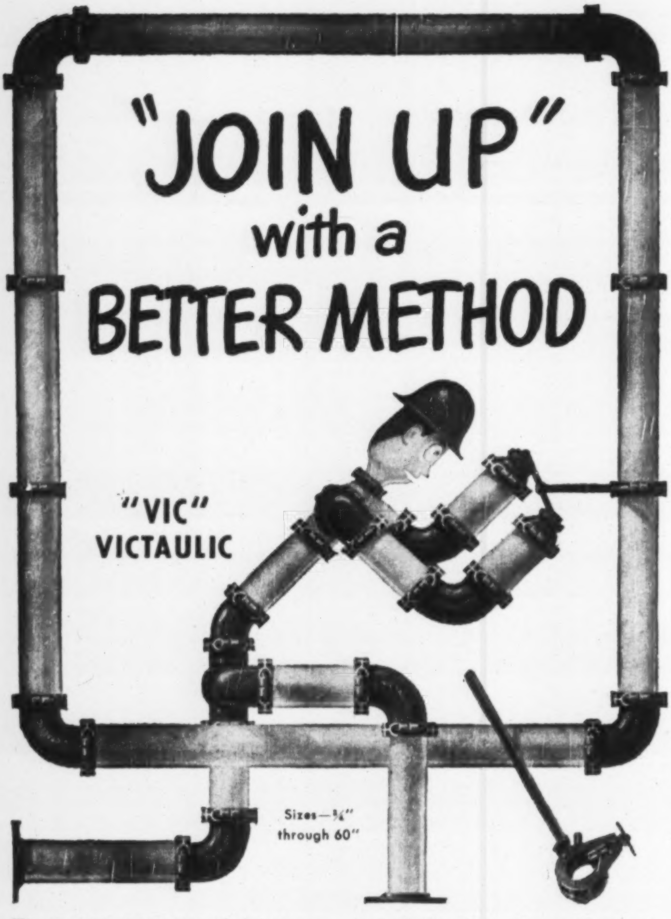


IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB



The VICTAULIC METHOD of piping can save you time, work, and dollars on construction and maintenance *right down the line.*

When you "join up" with the VICTAULIC METHOD you are assured of easy, quick, and dependable pipe connections. Pipe ends are "hooked up" in a jiffy with Victaulic couplings—only two bolts to tighten with a standard T-wrench! Victaulic pipe joints stay positive-locked, leak-proof . . . they are built to stand up under extreme pressure, vacuum or strain conditions!

Grooving those pipe ends is a cinch with the VICTAULIC METHOD . . . "Vic-Groover" grooves 'em automatically in half the time of a conventional pipe threader!

AND Victaulic offers a complete line of Full-Flow Elbows, Tees, and other Fittings designed for free-flowing efficiency . . . giving complete versatility and dependability to the VICTAULIC METHOD.

"JOIN UP" with the COMPLETE VICTAULIC SYSTEM—a *better method* for efficient piping construction . . . and the EASIEST WAY TO MAKE ENDS MEET.

* * *

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26TH VICTAULIC YEAR

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The easiest way to make ends meet
VICTAULIC
PIPE COUPLINGS AND FITTINGS

NEWS BRIEFS

Parking skyscraper—An automatic parking skyscraper is being built near 14th and K St., N.W., Washington, D. C. Builder Arthur G. Dezendorf says it will park 72 cars in an area 25 ft wide and 63 ft deep—two stories below ground and 16 above. Height exceeds Washington's legal limit, but an exception was granted.

Sturdy Gertie—This week it is expected that the $14,000,000 Tacoma Narrows toll bridge near Tacoma, Wash., will be opened to traffic. Known in some quarters as "Sturdy Gertie," the four-lane suspension span will replace a narrower "Galloping Gertie" which collapsed in a high wind in 1940.

Helpful engineer—In the final arguments of a lawsuit in Douglas County, Neb., brought by a taxpayer to stop the $7,500 annual salary of Charles W. Eubank, engineer consultant to the county board, County Attorney James J. Fitzgerald said that Mr. Eubank "has paid for himself many times over."

Yankee ingenuity—Up in Newfield, Me., where ingenuity is sometimes more plentiful than money, they are building a permanent school house over and around a temporary building, and pupils are attending classes while construction is going on. After a big fire in 1947 the state provided a temporary metal building for the school. With a building complete on the inside and temporary on the outside, the town was faced with a problem, which was solved by a plan to encase the outer walls with brick and to put on a roof several feet above the metal one.

An ill wind—Phoenix, Ariz., will abolish trash burning at the city dump in favor of the land-fill method to be conducted on 66 acres of newly-leased land. This is enough to handle the city's needs for five to ten years, according to estimates by Kenneth King, director of public works. The system will increase disposal costs about $25,000 a year, but it will eliminate noxious smoke clouds from the dump.

Flood water and ground water—Sand pits as sinking basins have been suggested to control floodwaters in Orange County in southern California. The scheme at the same time would replenish underground supplies with water that ordinarily escapes to the ocean. The county board of supervisors has been asked to consider such

(Continued on page 13)

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MAGNETORQUE*
LOOK TO P&H FOR ADDED VALUES!

Faster digging cycle ... up to 20 percent faster ... is yours with the P&H Magnetorque* electric swing. Only Magnetorque can give you faster, smoother starts and stops that make this possible. It means greater production, lower cost, and more profits. You'll say it's the greatest advancement ever made on large draglines and shovels. You can say good-bye to swing friction troubles ... once and for all. Power is transmitted electro-magnetically ... there's no friction ... there's no wear ... and far less time-outs to rob production. The smooth operating Magnetorque lasts the life of the machine.

On all kinds of digging the Magnetorque can help you cut yardage costs. Magnetorque electric swing is standard on the P&H 1055 (3½ cu. yds.) and the new 955-A (2½ cu. yds.). Write today, for more information.

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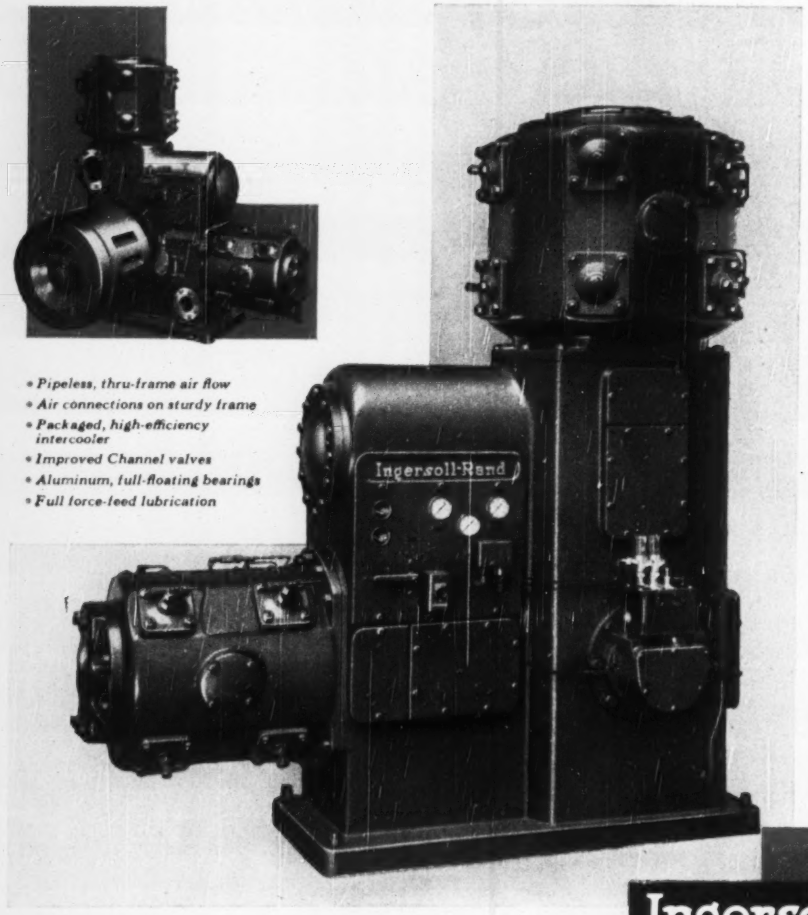
that means lower costs of Installation, Operation and Maintenance



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THE SIMPLEST
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MOST ACCESSIBLE
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READY-TO-RUN
HEAVY-DUTY
CROSSHEAD-TYPE

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TWO-STAGE
80 to 125 psi

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SIZES
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The XLE incorporates a "new look" and a new idea in air-compressor design. It is a heavy-duty, well-balanced, easy-to-keep-clean machine that can be installed with an absolute minimum of effort, time, and cost . . . on a minimum of foundation.

Simplicity of XLE construction, and advanced-design features such as aluminum-alloy full-floating bearings that require no adjustments in a sealed, dust-tight crankcase, result in lower-cost maintenance and a higher degree of dependability.

The XLE is a highly efficient compressor built for continuous, full-load operation, and is ideal for factories, railroad shops, mines, powerhouses, and large construction jobs. It is particularly suitable wherever skid-mounting, factory floor, or ground conditions require a well-balanced machine.

FOR MORE INFORMATION on XLE Air Compressors, phone or write the Ingersoll-Rand office nearest you, or write . . .
INGERSOLL-RAND, 11 Broadway, New York 4, N. Y.

ROCK DRILLS • AIR & ELECTRIC TOOLS • OIL & GAS ENGINES • PUMPS • TURBO BLOWERS

(*Continued from page* 10)

a plan and to acquire rights of way for the flood control project. The sand pits, for the most part, are unused. Advocates of the plan to use the pits claim that flood waters, diverted by ditch or pipeline into abandoned sand pits, would sink slowly into the underground basin.

Paving for bus stops—New blacktop specifications for all future paving contracts involving bus stops have been ordered in Toledo, Ohio, by City Manager Arnold V. Finch, following successful tests on an experimental strip. The new formula will include a mix of dry cement in the top paving course to stiffen up the asphalt, and will apply a patented matter which Mr. Finch said makes the wearing course impervious to gasoline. He said the new specifications are designed to prevent the "rolling" of asphaltic-concrete under the heavy wear experienced at bus stops.

Caveat emptor—Contractor Michael O'Malley of Chicago is seeking in a federal court action to get $20,000 damages from a well-known 5 and 10-cent store because it sold him what he thought was a 25-ft tape. The tape turned out to be 26 ft long and as a result he built a number of oversize structures—in fact, six garages and a house.

Heavy traffic—Record-breaking traffic over the San Francisco Oakland Bay Bridge was reported for August, with a daily average of 85,310 vehicles. Fridays were the heaviest traffic days, with an average of more than 90,000 cars, except for one Sunday, when 93,417 vehicles crossed the span.

THE COVER

The man on the cover is, of course, Maj. Gen. Lewis A. Pick, Chief of Army Engineers; the shovels are souvenirs of work on many an engineer project—and the pun was irresistible to our captionwriter.

But the tasks that face Gen. Pick and the corps he heads are no subjects for punsters. With a small-scale, but grimly-real war not yet over in Korea, and prospects of an enormous buildup of U. S. armed strength both at home and overseas, the Corps of Engineers has a heavy military task before it. The refurbishing of military installations, construction of new ones, and much work for the Air Force falls into corps hands, as does the task of carrying on many river-and-harbor, flood-control and water-conservation projects.

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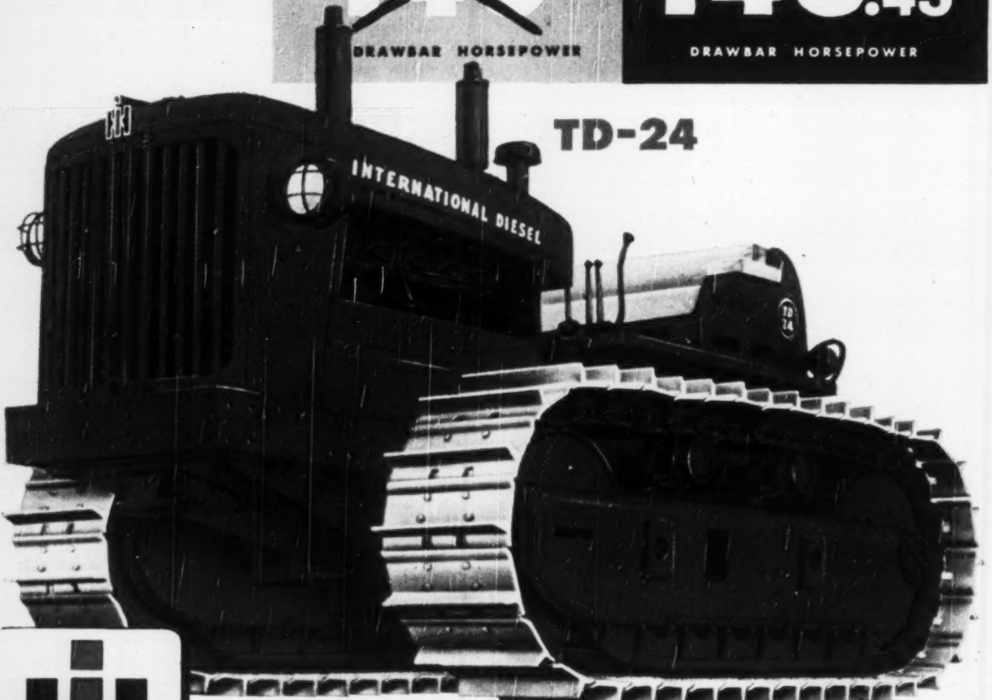
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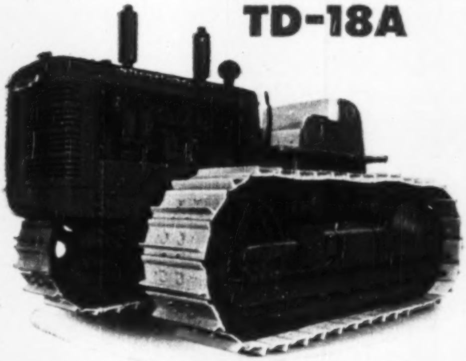

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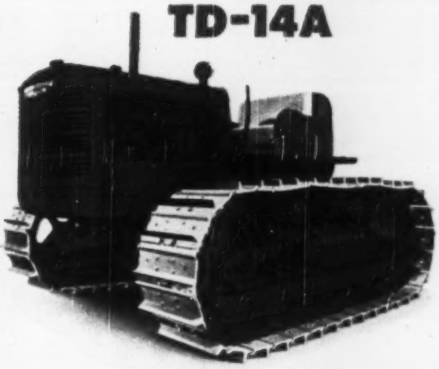

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Official tests of the three latest models of International crawlers show how conservative International Harvester's advertised horsepower ratings have been.

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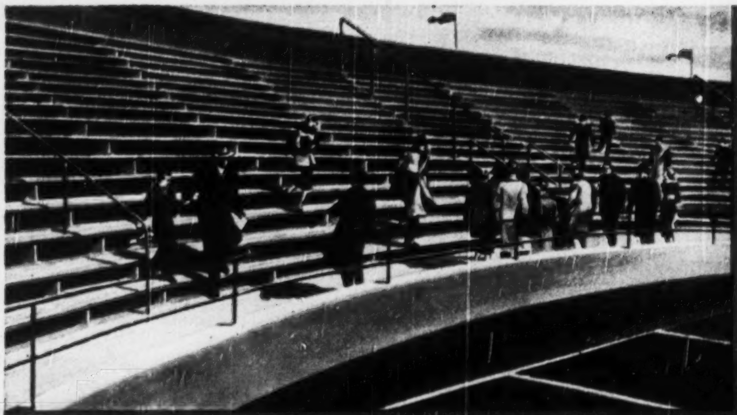

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At small extra cost, stadium seats will last longer when built of PENTA-treated wood. PENTAchlorophenol—the modern wood preservative—is clean, does not leach and retains its chemical structure through the years.

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Light, power and telephone companies are switching to PENTA. They've found that line crews prefer clean poles treated with PENTA. Long lasting PENTA protection means longer pole life and reduced maintenance costs.

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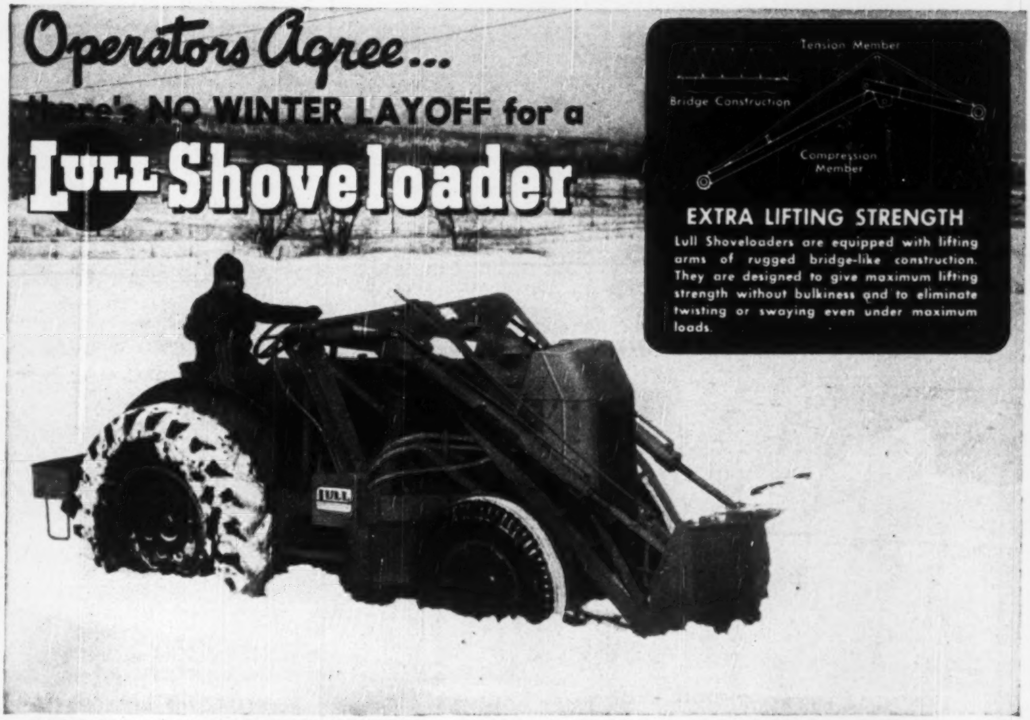

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Lull Shoveloaders are equipped with lifting arms of rugged bridge-like construction. They are designed to give maximum lifting strength without bulkiness and to eliminate twisting or swaying even under maximum loads.

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Eight models with a wide variety of interchangeable attachments make Lull Shoveloaders the most versatile equipment you can own.

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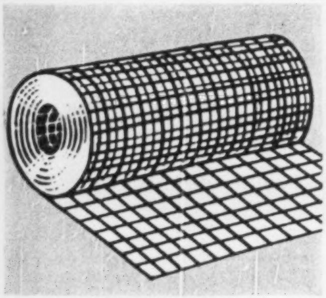
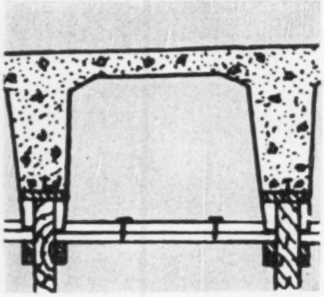
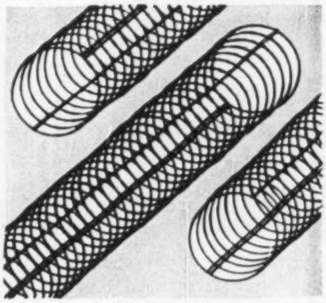

WIRE FABRIC


STEEL FORMS for concrete joists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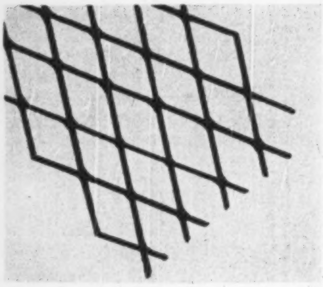
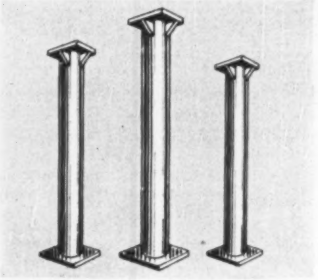

EXPANDED METAL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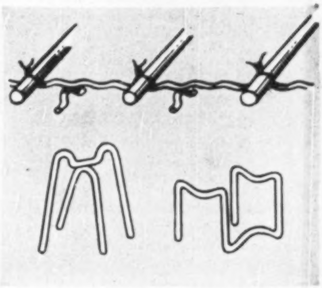
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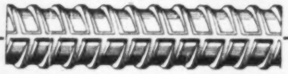
Construction Steels for Prompt Shipment from Stock

Did you know that your nearby Ryerson plant is a time-saving source for the products pictured above? And that, right now, Ryerson stocks of all these products are "fairly good to excellent"? Most are on hand in several types and a wide range of sizes.

Ryerson construction steel experts are ready for your call at each of thirteen strategically located plants. You can count on them to give your requirements special attention and prompt, accurate handling.

Your nearby Ryerson plant is also a convenient source for many other construction steels, but, of course, today some shortages are inevitable. However, call us for any steel requirement and we'll do our level best to help you.



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Current demand has drastically reduced reinforcing bar stocks at most Ryerson plants. However, our LOS ANGELES and SAN FRANCISCO plants have good stocks of new billet, intermediate grade bars meeting ASTM specification A15-39 and the new bond specification, A305-49—and prompt shipment can be made in stock lengths or fabricated to your order.

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THE CONSTRUCTION WEEK

NLRB QUESTION MARK—Labor and management have been guardedly pleased with his appointment, but no one is sure what kind of an enforcement officer George J. Bott will be. Appointed recently (ENR Oct. 5, p23) to the post vacated by Robert N. Denham as general counsel for the National Labor Relations Board, Bott will of course be the sole judge of what charges—if any—to issue against employers or unions. As chief enforcement officer, too, his decisions on such problems as union-preference elections for construction (by-passed by Denham) will have large effect on the industry. At the moment there are only guesses—there is virtually no record. He has been an attorney for the board for 13 years; since 1948 he was Denham's director of field operations. But he has had little to do with policy making, and never was a trial examiner—so there's no record of interpretations of the law to fall back on in assessing him.

..AND YOU TAKES YOUR PICK—Everybody (or at least everybody who attended a recent open hearing held by the Delaware River Joint Commission) wants another crossing of the Delaware River, south of the present Philadelphia-Camden Bridge. But what nobody seems able to agree on is where the new crossing should be—and whether it should be a tunnel or a bridge. Thus far, eight sites (seven for bridges, one for a tunnel) have been proposed. Engineers' estimates have set cost of a bridge at $43,000,000, of a tunnel (one tube) at $26,000,000.

MORE TOLL ROADS?—North Carolina has decided that it won't do anything, for the moment, about a proposed $100,000,000 toll turnpike. But it might, said Gov. Kerr Scott, if Virginia and West Virginia go ahead with plans to build connecting toll-turnpikes to the west. Reason: Exhaustive surveys indicate that such a turnpike for North Carolina must have a revenue of $16,000 per mile—and actual expected revenues would only total about $8,500 a mile. But if the Virginia-West Virginia roads are built, they might funnel enough traffic to North Carolina to change the financial picture. In any case, Scott told state legislators, enabling legislation should be readied.

COLLECTOR'S ITEM—Souvenir hunters are going to get left-over fragments of the White House, after all. The commission in charge of renovating the 150-year-old mansion is still working out the details, but plans to distribute a half-million items of debris to the public. When the time comes, according to present plans, collectors will get fragments just for the asking—plus a small handling charge. To thwart any rackets, the commission plans to issue souvenirs only on written request, and to demand that each recipient certify he won't resell his prize. Some of the more historic items—such as mantels—will go to museums.

LABOR—TIGHTENING UP—The U. S. labor supply—already tightening a little—will get really tight next spring, according to the government's thinkers. By spring, they figure, there'll be more men and women in uniform, and defense production will be rolling faster. But, say the pundits, there shouldn't be more than a few local critical scarcities, if things are managed right. For example, the U. S. Bureau of Employment Security figures that if the same proportion of the population makes itself available for employment as at the peak of WW II, we can increase our work force by 5,600,000.

10 EASY PAYMENTS?—Looking somewhat enviously on Pennsylvania's experiments with state authorities to finance public buildings and the like Ohio's Gov. Frank J. Lausche has proposed something similar: Creation of state buiding and school construction authorities. What started the governor on the track was the state's annual $1,186,689 bill for rentals of privately-owned office space and janitor service. With that kind of money, Lausche figured, the state could pay authorities that would build needed structures—and the state would eventually wind up as owner.

PRIORITIES—Actually, says Washington, there isn't much help to businessmen in National Production Authority's new priorities regulation—unless they are producing defense equipment or components. But what it does do is give businessmen clear-cut authority to put defense orders ahead of those from regular civilian customers.

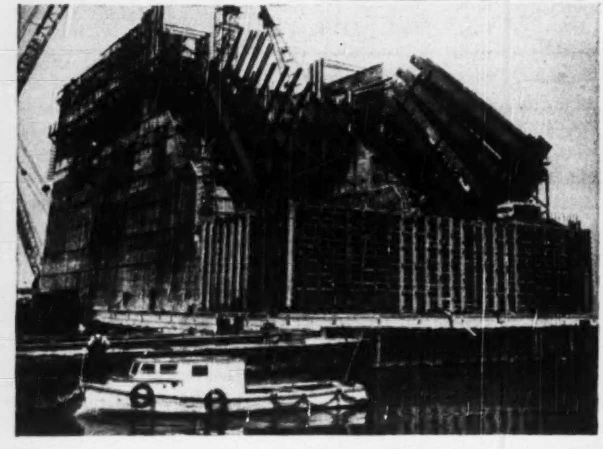
For construction in particular, there's this: Direct construction contracts of the Defense department and the Atomic Energy Commission are covered in the initial priorities order. The two agencies may assign priority ratings to prime contractors—a rating that could be extended by him to suppliers of products and materials (except sand, gravel, crushed stone and slag) that go into a structure.

NOTHING FOR EQUIPMENT—To forestall use of a priority rating by a contractor to buy construction equipment, however, NPA specifically excludes extension of a priority rating for such purchases.

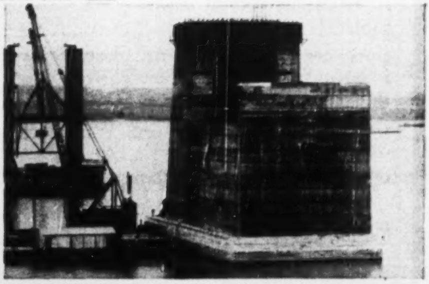
MORE LATER—At the moment, there are no priorities for plant construction or expansion by manufacturers who have received priority orders for manufacturing defense materials. Observers are sure it won't be long, though, until some help will be available for some of these expansion projects.

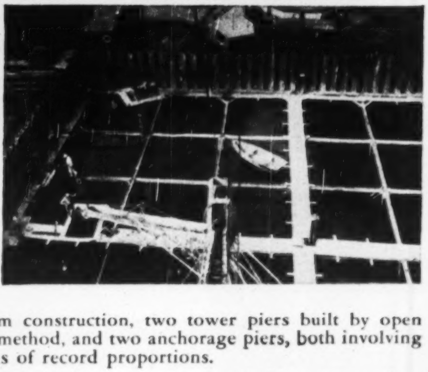
CROSSING THE DELAWARE--1950 STYLE

Substructure Concreting on Delaware Memorial Bridge, Spectacular Construction Achievement, Highlighted by Record Concrete Pour



The east anchorage pier of Delaware Memorial Bridge is a huge monolith rising 158 ft. above the river. Concreting the foundation slab, a solid half-acre of concrete, 32 ft. thick, involved a record tremie pour—two floating mix plants supplied 26,888 cu. yds. of concrete, placed under water in 7.4 days' continuous operation.





● Spectacular in eye-pleasing grandeur, the Delaware Memorial Bridge, sixth longest of its type, with 2150-ft. clear center span, will connect Delaware's duPont Highway with New Jersey's great, new Turnpike.

Spectacular, too, is something the eye won't see—the construction know-how that went into building the Bridge's foundations.

The river substructure consists of six approach piers of cofferdam construction, two tower piers built by open caisson method, and two anchorage piers, both involving problems of record proportions.

The east anchorage pier is of cofferdam construction, and here this dramatic project reached its climax. The massive foundation slab, 99 ft. wide, 225 ft. long and 32 ft. deep, involved a record non-stop pour of 26,888 cu. yds. of concrete, placed under water by tremie method in 7.4 days.

Building the bottom of a bridge across a busy river in all kinds of weather takes specialized skills, precision planning, adequate equipment, and above all, clocklike co-ordination—with an assist from suppliers who can be depended upon to mesh their operations with yours.

We are proud to have had the opportunity to co-operate on this outstanding job, by supplying 74,928½ bbls. of LONE STAR AIR-ENTRAINING CEMENT with stop-watch accuracy. Dependable Lone Star service matches quality of product, always.

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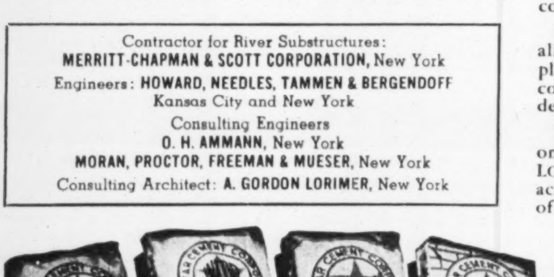
MORAN, PROCTOR, FREEMAN & MUESER, New York
Consulting Architect: **A. GORDON LORIMER,** New York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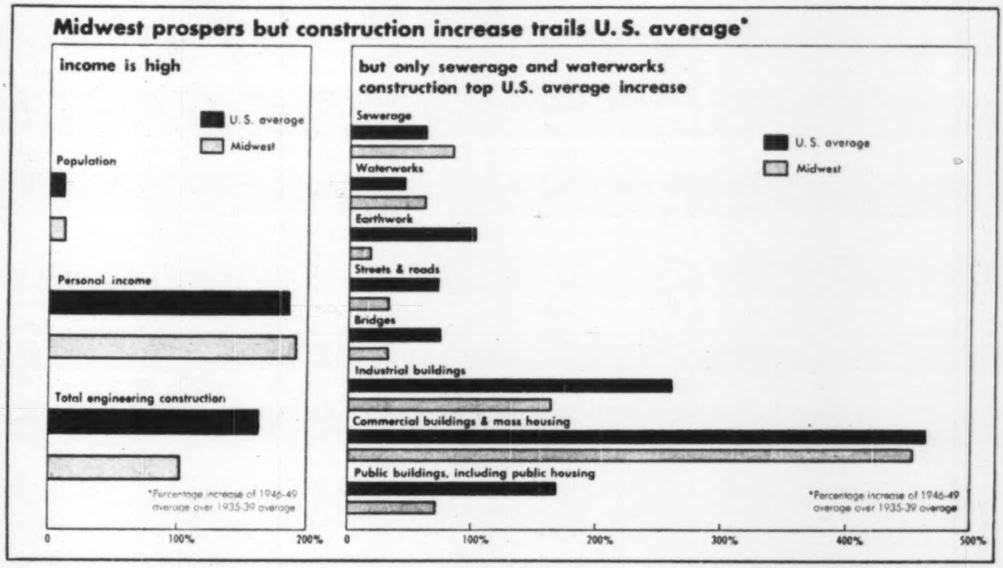


Midwest prospers but construction increase trails U. S. average*

This report—second in a series of seven analyses of regional construction trends—is based on a special economic study made by ENGINEERING NEWS-RECORD.

NEXT YEAR GOOD FOR MIDWEST

Midwest construction activity, rising since the war, gets a new boost from mobilization. Shortages of manpower and materials will curtail non-essential building. But with industry working overtime, industrial construction will boom.

The Great Lakes region—Ohio, Illinois, Indiana, Michigan and Wisconsin—did over 26% of US industrial building before the war. Its share slipped in 1946-49, but early this year it shot up above the prewar level. Expansion of heavy industry, heart of the Midwest economy, will push it up again.

Postwar Midwestern building has been heavy in all categories. Since 1946, the value of annual Midwest building has been double the prewar average. This year the figure will be higher—contracts made in the first half of 1950 equaled 74% of the total for 1949.

In spite of the big jump in Midwest construction, the region's share of total US construction actually fell after the war. It dropped from a prewar average of 16.7% to an average of 12.6% in 1946-49.

While Midwest building doubled, the country as a whole more than trebled its annual construction bill. But mobilization will send the Midwest share back toward prewar levels.

The war stimulated building most in regions where industrial development was in an early stage—in states like Texas and California. In those areas, increases in urban population created an unprecedented backlog of demand for housing and commercial building.

In contrast, the Middle West is an older, already highly industrialized region. Many of its construction needs had been satisfied before the war. So postwar prosperity had less effect on construction there.

The Midwest specializes in producing steel, automobiles and machinery—goods in great demand during the postwar period. With heavy industry going full blast, Midwest industrial building after the war averaged 165% higher than in 1935-39.

Midwest industrial construction rose again early this year. Now added demand for steel and heavy machinery will force expansion of many plants. And additional plant for heavy industry will get high priority if building materials are controlled. So industrial construction should keep rising through 1951.

Wartime population growth left the US with a huge demand for commercial buildings. In the Midwest, postwar commercial building, including mass housing, jumped 453% over the 1935-39 average.

1950 figures will be much higher—the value of contracts made in the first half of 1950 exceeded the total for all of 1949.

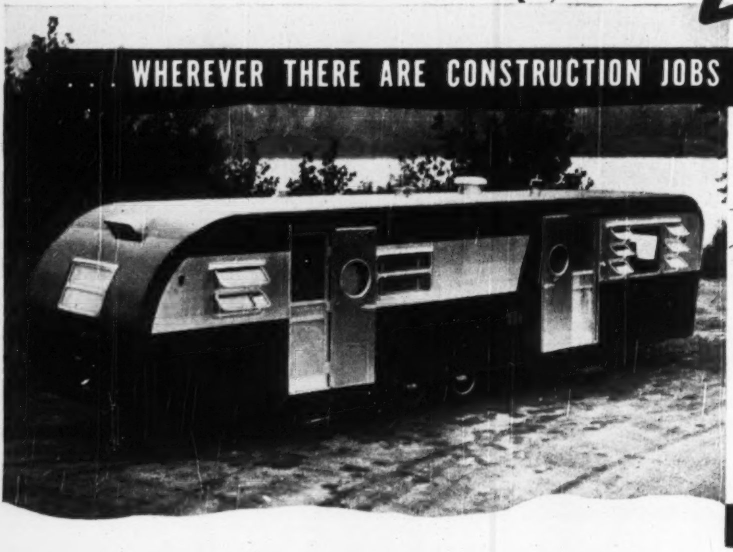
THE OUTLOOK—The immediate prospects for Middle Western construction are excellent. Shortages will curtail some types of building, but mobilization will boost high-priority industrial building.

After the mobilization period, the backlog of demand for commercial construction and housing should keep Midwestern builders busy for years. Continued population growth will create new demand. And an increasing need for replacement of old buildings will appear.

Real Home Life for transient workers

Better Living IN A Liberty

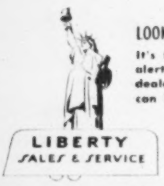
. . . WHEREVER THERE ARE CONSTRUCTION JOBS TO DO



Put an end to Temporary Housing . . . enjoy Home Life in the Field

On-the-job housing is a very real problem with the Field Construction specialist. The Liberty Coach Company has a happy solution for the man whose work takes him far afield.

Match the better living features of this great Liberty Trailer Home with the conveniences you would expect in a fine home.
You'll discover that this Liberty IS a home. It's spacious, comfortable and down-right livable! Yet, this same Liberty fits your peculiar problem — mobility. Changing jobs is as easy as moving your car. No disruptions, no moving headaches, you just keep on enjoying home life wherever your work takes you. Get a Liberty and really start living!



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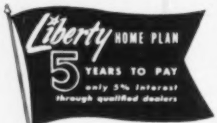
It's the symbol of an alert, reliable Liberty dealer — a man you can bank on.



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Only Liberty offers the convenience of five year financing.

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You will enjoy the comfort of Liberty's exclusive "Comfort-Conditioning". It's refreshingly cool in the summer and radiantly warm in the winter.

MODERN KITCHEN

Liberty's gleaming kitchen — compact and smartly efficient — is the envy of every housewife who appreciates better living through better conveniences.

FULL BATHROOM

The luxury of a full-sized shower bath and flush-type toilet with plenty of elbow room is yours in the sparkling ultra-modern Liberty bathroom.

AIRY BEDROOMS

For those hours of refreshing slumber there's nothing finer than the light, airy bedrooms designed by Liberty. They have the atmosphere of relaxation.

COZY DINETTE

When the family gathers for dinner there is no problem of cramped quarters. The Liberty Dinette was designed for family-style comfort. And Liberty's Snack-Bar for the quick lunch.

Only Liberty has Comfort-Conditioning features with Patented Floor and Ventilated Attic

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EDITORIALS

Check on Advance Planning

It is not clear just why Congress thought it necessary to freeze the fund from which loans could be made for preparation of plans for public works projects when it passed the Omnibus Appropriation bill. The cash that is saved thereby is only a small fraction of the total appropriated and yet it is important to the maintenance of a backlog of useful public work as a hedge against a slump in general business. Talking about business slumps in these booming days may seem to be overly cautious, yet past experience should demonstrate that it is not. Also curtailment of public construction that does not contribute directly to the defense effort is going to release engineering employees of public agencies who should not be laid off. These men could be profitably employed on long-range planning if the public agencies can find funds for such studies.

Steel Conservation Coming

Engineers—and the construction industry generally—may as well be looking toward ways to save steel. No official appeal to that effect has yet come from Washington, but steel saving designs will soon be urged on all federal departments.

The reason, of course, rests in the demands that will result from the stepped-up program of the Defense Department. Although the extent of these demands is not yet spelled out, it is not expected that the amount of additional steel that the military can use between now and the end of the fiscal year next July will exceed 4 million tons. Barring all-out war, military demand is expected to rise to 6 million tons in fiscal 1951 and to 8 million tons in fiscal 1952. Before these higher demands arrive, however, additional steel production is expected to be available. So the 4 million tons looms as about the maximum annual saving that will have to be made.

To assign that amount of steel—approximately 4% of total production—to some new demand would not have been difficult at most times in the past. Today, however, we are already using all of the steel that can be made. The only way to satisfy military requirements is to cut out some of the present uses of steel.

Reasonable cutbacks in automobile and refrigerator and allied products manufacture could of course effect a large part of the saving. As compared with construction, however, these buyers of steel—being large and consistent purchasers—may be expected to get better results from the steel companies than the smaller and multitudinous buyers of steel for construction projects. With the cards stacked against it, the construction industry will probably have to do more than its fair share of saving.

It is for this reason that it is suggested that thoughts be turned at this early date toward steel saving designs. It should hardly be necessary—from what is known now—to go to the extremes of substituting timber, concrete and other materials commonly used during the World War II period. But it might be well to consider such steel saving expedients as lighter walls and floors in building, as welded construction for bridges and buildings or elimination of mesh reinforcing in pavements. It's an unwelcome program but it may have to happen here.

Where Experience Counts

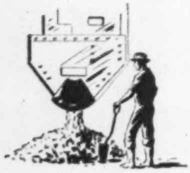
New Jersey's Highway Department has found that its older engineers do not make as good marks in civil service examinations as do the younger men with much less experience. One reason: it is easier to prepare examinations that give an indication of a man's knowledge of engineering theory than it is to formulate questions that evaluate his experience.

But the department has also found that some men who passed examinations with high records did not prove satisfactory on the job because they lacked the practical experience. As a result, the department and the Civil Service Commission have undertaken to set up examinations that will give more weight to experience, where it is required, and less to theory.

All of which serves again to emphasize a fact frequently overlooked by those who seek a simple way to classify individuals—as in examinations for promotion under civil service laws or for registration as engineers. Artificial measures of this kind are at best only indicators of a man's ability; and in engineering work they often are poor indicators.

Take highway or railway engineering as an example. Excluding bridge design, no great knowledge of engineering theory is needed to fill many jobs in those two fields. Yet the man who fills them adequately must have a wide knowledge of how physical conditions will affect a particular undertaking, of what can be expected of available materials and equipment, and finally of how the men who will have to do the job will act. That type of knowledge cannot be obtained in text books, and cannot be pried loose in examinations.

Civil service systems are necessary forms of protection against using positions in public service to pay political debts. Yet the methods of selection often rule out men who would be fine assets to the public service. If New Jersey can devise an examination that will give practical experience proper weight, the civil service system will reap important benefits.



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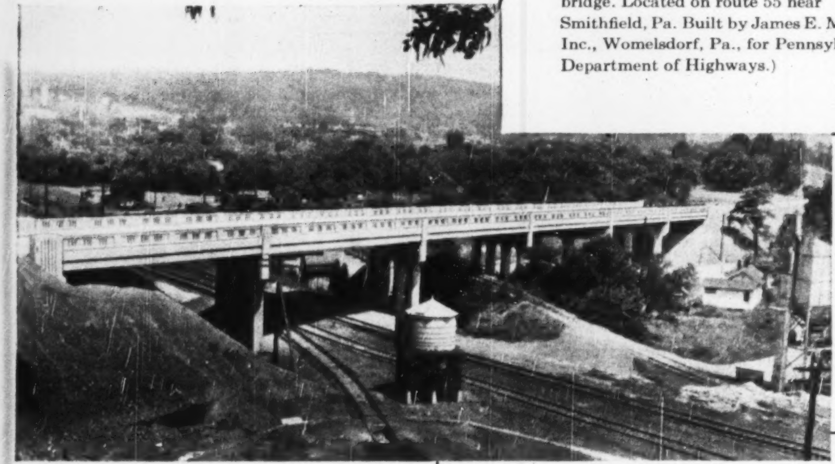

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ENGINEERING NEWS-RECORD

OCTOBER 12, 1950 VOL. 145 NO. 15

Defense, AEC begin issuing priorities for construction

Orders to extend to subcontractors and suppliers doing work directly for armed services, Atomic Energy Commission—Construction equipment not included

Construction priorities are being issued this week to contractors who are building defense projects for the Army engineers, the Navy Bureau of Yards and Docks, and the Atomic Energy Commission.

All defense contracts are included. Contracting officers of the Defense Department and the AEC automatically assign priorities to all prime contractors—in accordance with the delegation of priority powers to these two agencies last week by the National Production Authority.

- **Extends to subs**—Price contractors in turn extend the priority to their subcontractors and suppliers. Assignment of a priority gives the contractor —and his subs and suppliers—first call on deliveries and services from those who are furnishing anything that goes in the project. At the same time, the priority requires top preference for project construction by the prime contractor, as well as by all those down the line of priority extension.

Excluded from the priority privilege are purchases of mineral aggregates and construction equipment—to prevent contractors from using a priority rating to build up construction plant. An exception is made for contractors who are doing work in combat areas; in the Defense Department order, equipment is excluded only for projects in the Zone of Interior. The extent of this zone is subject to military interpretation, but it ordinarily would embrace all non-combat areas.

Another special exception is made to the AEC for use of priorities on construction equipment purchases. The commission may assign priority rights to contractors for buying construction equipment specifically needed on AEC projects. But the contractor cannot retain the equipment; it must become the property of AEC.

- **For military only**—Under the initial order, priorities for construction are assigned only to direct contracts of the armed services and the AEC. No construction priorities can be applied to plant expansion projects by producers and manufacturers who are filling procurement orders for the AEC and the Defense Department. All such procurement contractors receive priority rating, but they can use them only for materials, supplies and services that go into the procurement items—not for capital expansion, either in building plant or buying production equipment.

Some construction priorities for plant expansion projects may be expected soon. NPA has indicated that such priorities will be issued in certain cases to manufacturers and producers who are working on defense contracts.

Construction priorities authorized last week by the NPA order will apply to between $1.5 billion and $2 billion of construction now in progress or to be started before June 30, 1951, when the priorities powers of the Defense Production Act are due to expire. The law almost certainly will be extended by Congress before that date.

To the AEC, the NPA delegated priorities authority for $825 million of construction commitments—up to next June 30. The Defense Department already has received from Congress $640 million of appropriations for military public works in the current fiscal year. Added to that is a carryover of some $150 million still to be expended from prior year funds.

- **Priorities for civil works?**—Additional money for military public works will be voted by Congress in later supplemental defense appropriation bills this year. The total of Defense Department military construction funds will reach a sizable sum before the fiscal year ends. All of the money will be committed quickly, if present plans are carried out.

Further, for the Corps of Engineers, NPA's delegation of authority to the Defense Department was broad enough to include civil works projects. Wording of the order would allow use of priorities for all authorized construction programs of the department. While awaiting full instructions last weekend, the Army engineers had a hunch that priorities probably would

(*Continued on page 27*)

"—ON A ROAD THE SEABEES BUILT"—Veteran Marines were on familiar ground despite strange surroundings when they landed in Korea. Once again they rushed forth from LST bow doors onto landing floats made up of the Navy's war-prover steel-box pontoons. Once again the floats were assembled by the Seabees. News from Korea states that the Navy has given the Seabees a "well done" for their work in taking over Inchon Harbor and making it possible to move troops and supplies inland for Seoul's liberation. Lt. Comdr. M. T. Jacobs, skipper of the Inchon Seabees, received a bronze star for the operation. Pontoon piers were assembled in Japan, towed to Korea. (Acme Photo)

COMPLETED—The High Spire bridge over the Susquehanna River, part of Pennsylvania's eastern extension, is ready for opening. The 100-mi extension, which joins the Pennsylvania Turnpike at Carlisle, was scheduled to open Oct. 1. (ENR July 13, p. 25).

New credit curbs hit housing market

Regulation X—the government's long-awaited curb on housing credit—came out this week. It is stiff and will undoubtedly slash the number of new housing starts in 1951.

The new restrictions, effective the day announced, apply only to owner-occupied homes. The Federal Reserve Board and the Housing and Home Finance Agency will get out another set for rental housing credit soon.

The FRB-HHFA curb does its tightening mainly via the down-payment route. For a new FHA-financed house, costing $6,000 or under, a buyer will hereafter have to put up 10% of the purchase price. The percentage required for the initial payment rises progressively with the value of the house.

A $9,000 home, for example, requires a down payment of 21%. The percentage is 23% for a $10,000 unit (or has been 18%); 32% for one costing $15,000, 41% for a $20,000 dwelling and 50% for homes priced at $25,000 or more. Conventionally financed homes (non-FHA) get the same treatment.

Veterans get a substantial break, as the Defense Act directed. The down payment on a home costing $6,000 or less must be 5% or $250 (which ever is greater). For a dwelling priced up to $12,000, vets get a 10 percentage point advantage over buyers using FHA or conventional financing—i.e., a down payment of 11 to 15% as against 21% to 25%. The advantage diminishes as the dwelling price rises: it's only 5% for homes costing $15,000 or more.

FRB and HHFA tightened up a bit on maturities, too. Homes costing below $7,000 get 25 years, but those priced above this figure must be paid up in 20. While conventional mortgages didn't have to be amortized before, they now must be paid off at a rate of 5% a year until 50% of the home's original cost has been repaid.

The new regulations embrace all forms of financing—not just first mortgages. In other words, a buyer can't meet the down payment on a home by borrowing on a second trust or a personal loan. He must declare all borrowing undertaken at the time the home is financed.

Here's how the new credit terms hit the purchaser of a $9,000 home—the most popular priced:

Back in May or June, a conventionally-financed home in that range would have brought a down payment of about 18%—on the average. Now, the buyer has to put up 21%. The regulation is relatively tougher on a veteran.

He would have gotten by with an initial cash outlay of 4% a few months ago; now he's got to put up 11%.

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High court to hear Ohio compact dispute

The Supreme Court this week agreed to clear up the legal confusion surrounding the eight-state Ohio River Pollution Compact. Arguments on the case will be scheduled soon. Later in this term, the court will hand down a written opinion settling the issue.

NLRB announces tests qualifying contracts

Board's general counsel details policy to be followed in classifying firms engaged in interstate business

The construction industry now has a yardstick which it may use to find out whether the National Labor Relations Board considers a contractor's business as having a sufficient impact on interstate commerce to warrant bringing the contractor under the Taft-Hartley Labor Law. The same is true for materials suppliers.

NLRB has finally set down a definite policy.

Up until last week, the Board had used a flexible yardstick.

The National Labor Relations Board would not accept a case if the employer's business was "essentially local in character," even though it affected interstate commerce and could come under the Taft-Hartley Law.

But the National Labor Relations Board had no fixed measure for determining what was "essentially local." Now it has given industry something definite by announcing seven tests which it will apply.

The new General Counsel, George J. Bott, will adopt the same policy, so there will be no discrepancy between the two branches of NLRB (see p 19 for background).

Most contractors and materials suppliers will be governed by the amount of materials they purchase out-of-state or send outside the state, unless they operate in more than one state, when they will be covered.

Here are the tests which might apply to your business. NLRB will assert jurisdiction over:

1. Businesses which are integral parts of a multi-state enterprise.
2. Businesses which produce or handle goods for out-of-state shipment, or perform services outside the state, if the goods or services are valued over $25,000 a year.
3. Businesses which furnish at least $50,000 a year in services or materials to: Enterprises engaged in interstate or foreign commerce; public utilities and transit systems; or businesses covered by point 2.
4. Any business whose annual purchase of materials from outside the state amounts to $500,000 directly, or $1,000,000 indirectly, or a combination of inflow and outflow that add up to one of the above requirements.

The size of a project involved in a dispute or the source of materials used on it will not be a factor.

The National Labor Relations Board will consider the total annual operations of the employer.

Seek priorities for pollution clean-up

President Truman, members of Congress and all federal agencies designated to execute policies relating to the defense-mobilization program were among those petitioned to join with the Ohio River Valley Water Sanitation Commission in recognizing the new urgency for pollution-control measures in a resolution adopted by the commission at its quarterly meeting last week in Cincinnati.

Pointing out that ORVWSC has been striving to preserve limited water resources in the Ohio Valley through abatement of pollution, the resolution asked for adequate priorities on materials to insure construction of waste-treatment works. Some of these municipal and industrial plants have already been started and construction on many others is ready to be activated.

• **Pollution abatement essential**—"Disturbing reports have already reached the commission," says the resolution, "that installation of waste-treatment plants may have to be postponed because of growing shortages of material. It must be recognized that industrial production cannot be maintained or expanded without the basic resource of clean waters, nor can the communities that supply the manpower and services essential to industry continue to exist without safeguards to these water supplies."

The commission asserted that pollution-control measures so urgently needed in the Ohio River Valley have been retarded for almost a decade because of World War II, and now that their execution has been advanced to the point of imminent construction any further delays would menace public health and national welfare.

At its two-day meeting on October 3 and 4 the commission also discussed with radiological experts of the U. S. Public Health Service atomic bombing and its possible effect on water supplies.

It was pointed out that the relatively high turbidity of waters in the Ohio Valley would be of some advantage in absorbing radioactivity. The chief sanitary engineers of the eight states laid plans for the commission to establish time-of-flow schedules on the Ohio River so that treatment plants could be given adequate advance warning of the approach of slugs of radio-active-contaminated waters and adjust operations accordingly.

• **Agree to temporary standards**—The engineering committee of the commission reached agreement on tentative final bacterial-quality standards. These standards, establishing safe limits of bacterial pollution for water supply and recreational purposes, are based on special studies recently completed by Harold W. Streeter, consultant to the commission. The recommendations will be circulated among other regulatory agencies for comments prior to adoption next January.

A report on pollution-abatement needs in the Wabash River, prepared by the commission staff and to be utilized by the states of Indiana and Illinois in promoting the installation of waste-treatment works, was accepted and made available for limited distribution.

The commission also held a conference with directors and representatives of the eight state municipal leagues on means to advance local pollution-abatement projects. In reporting that bond issues for sewage improvements were receiving popular support, the representatives also stated that construction costs were moving upward so rapidly that funds voted on the basis of estimates are proving inadequate when bids are received.

Private capital to erect Calif. state building

California Director of Finance James S. Dean has announced he will go ahead immediately with plans for a $6,000,000 state department of employment building in Sacramento, the first to be built under a new scheme calling for construction on state property with the financial backing of private capital.

A September special session of the legislature appropriated $500,000 for the preparation of plans and specifications for the building. The 1949 session of the legislature approved the method of financing and the state supreme court has upheld its legality.

It is planned, Dean explained, to enter into contracts leasing state property to private firms for construction of buildings which would then be rented to the state for a lease period of 40 to 50 years. At the expiration of the lease the building would be transferred to state ownership.

Dean said that financial institutions such as insurance companies are willing to invest their funds in such projects.

Defense, AEC begin issuing priorities

(*Continued from page 25*)

be applied to some civil works construction jobs—especially to those that will produce power or other benefits important to defense.

Inclusion of civil projects would increase the volume of construction work covered under the initial priorities order.

But the primary significance of the directive does not lie in the amount of construction to which it will be applied: The order is important because it signals a major advance toward broader controls.

• **Steel, copper, aluminum, first**—Steel, copper and aluminum products will be among the first to feel the effects of priorities. Defense contracts—including construction projects—will have first claim on whatever quantities of these materials they may need. Since the demand for the three metals already exceeds the supply, priorities may be expected to make a tight situation even tighter. Wider application of priorities—soon to come—will intensify shortages and hasten the need for mandatory allocations.

Lumber and cement are not expected to be greatly affected by the present construction priorities. With the seasonal downturn in building, supplies of both these materials should soon catch up with demand, in the opinion of industry observers. Barring strikes or other unforeseen difficulties, current local shortages will not last much longer, these people say.

What may happen next year is anybody's guess.

All priority assignments under the initial order have the same rating. There are not yet any of the Double-A and Triple-A priorities that came along later in War II.

Each priority assignment to a contractor carries a "Defense Order" or "DO rating", followed by a two-digit number identifying the program under which the contract is being carried out.

Thus, for construction contracts of the Defense Department, the rating is DP 22.

For AEC construction contracts, the symbol is DP 41, but when special priorities are issued for purchase of construction equipment on AEC projects, the rating becomes DP 42.

A contractor using a priority must give the full DO rating in extending the priority to subcontractors or suppliers and calling upon them for preferential services and deliveries. Any contractor who thinks this job merits a priority, but who fails to receive one, should apply to his contracting officer in the armed services or the AEC.

States tighten highway-user controls

With high maintenance costs and ever-complicating restrictions spurring both sides, the long standing truck-user-highway maintainer battle grew sharper in many states last week.

It was a bad week for truckers in Missouri, for example. There, Gov. Forrest Smith—balked by voters in an attempt to raise state gasoline taxes by two cents a gallon some time ago—announced he was laying groundwork for a new highway construction plan. The plan, he said, would include provisions that truckers and motor buses "pay a more equitable share" of construction and maintenance costs.

The state has already spent all of its $135,000,000 in bond issues for highway work, and faces an annual maintenance bill of $15,000,000—a tremendous jump from the $6,000,000 it spent a few years ago. Commenting, Gov. Smith pointed to a significant fact—the state highway patrol in the first seven months of 1950 made 3,579 arrests of truckers tooling overloaded machines down Missouri roads.

- **Northwest too**—Washington was having trouble with trucks too. Truckmen, disturbed by strict enforcement of load limitations, called a meeting at Port Angeles, and invited Governor Arthur B. Langlie and State Highway Director William A. Bugge to attend. They got little comfort from the officials.

"Washington is already 20 years behind its roadbuilding program," said the governor, "and it'll never catch up under the beating . . . from heavy trucks." Bugge added that overloaded trucks have "pounded to pieces" one stretch of highway built only three years ago, and damaged bridges in western Washington so that it cost the state $9,600 to repair.

And, seeming to lend point to the statements, a timber-lined highway tunnel section near Yakima collapsed after its supports were hit by a large construction truck carrying a bridge pontoon. The state highway patrol cited the driver of the truck on charges of loading higher than the maximum allowed in a special haulage license.

- **Trucks can be useful**—But in New York, members of the American Trucking Association reported that they could marshal trucks to carry more than 240 million gallons of water per day into New York City, should any wartime emergency require it.

And at the same annual convention, Maj. Gen. Frank A. Heileman, U. S. Army chief of transportation, highlighted another truck use when he told of plans to speed shipments of military supplies. State governors, Gen. Heileman said, will be asked to designate officials who will attempt to stop interference with military cargoes that may at times violate local laws. He said this request would extend to overweight vehicles, and permission for sealed cargoes to go through without inspection.

- **Highway bureau criticized**—In Nebraska, Gov. Val Peterson leaped to the defense of his state highway department, with the statement that Nebraska's is "as efficient as any in the U. S." The department has been under heavy attack on charges of inefficiency by farm, trucking and oil interests.

And in Indiana, the Indiana Highway Users' Conference said it would fight any legislation in the 1951 state Assembly that would call for increase in the present four-cent-a-gallon gasoline tax.

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Delaware traffic studied by New York consultants

The Delaware State Highway Department has retained the Knappen-Tippetts-Abbett Engineering Co. of New York City, to make a survey to determine the best method of moving traffic from the $40,000,000 Delaware River Memorial Bridge now under construction to the Delaware-Maryland state line.

M. Allan Wilson, chief engineer, said that the survey was well under way. One of the main questions was whether existing highways or new connecting highways could be used to the best advantage.

The moving of traffic between the new Delaware River Memorial Bridge and the Chesapeake Bay Bridge, the latter also now under construction, is the principal problem.

The study and survey undertaken by the consultants will cover the area from a point along the Delaware-Maryland state line, in the vicinity of Warwick, to the site of the Delaware River Memorial Bridge, opposite Farnhurst. Mr. Wilson also indicated that provisions for the bridge traffic are under way in other states. In New Jersey a limited access divided highway, New Jersey Turnpike, is now under construction between the George Washington Bridge and the Delaware River Memorial Bridge.

Maryland now has plans for the construction of a highway from the Chesapeake Bay Bridge to the Delaware-Maryland state line in the vicinity of Warwick. On the west side of the Chesapeake Bay Bridge traffic will be provided for by divided highways leading from Baltimore, Washington and Annapolis.

ALUMINUM EXTERIOR—The steel frame of this 24-story air-conditioned office building in New York is being covered with aluminum. Sash and mullions are extruded aluminum; spandrels and pier-covering are cast aluminum, in panels about 4 ft square. Insulation against heat loss or gain is achieved through the reflectivity of the facing, and through the 2-in. air space between the metal panels and the 8-in. brick backup. Sylvan Bien is the architect, Sam Minskoff & Sons the general contractors.

An 18-mi. freeway opened in San Diego County, Calif.

California Highway Commission members and officials from San Diego, San Bernadino and Riverside counties, attended ceremonies recently as the longest strip of freeway ever to be opened in that state at one time was completed on U. S. Highway 395 in San Diego County.

The rebuilt and relocated strip extends 18 mi. from the San Diego city limits to Lake Hodges. The Poway grade was eliminated as well as many curves and other traffic hazards. The highway connects with Cabrillo Freeway in San Diego, a 7-mi. stretch which was completed over two years ago.

Construction has been under the direction of E. E. Wallace, district engineer for the State Highway Commission in San Diego County. He and George T. McCoy, state highway engineer, were among those at the ribbon cutting ceremonies. C. Arnholt Smith, president of National Steel & Shipbuilding Co. and a former state highway commissioner who was largely responsible for the Highway 395 program, cut the ribbon.

CONSTRUCTION BUSINESS

Industrial building takes top billing

The star performer in construction this fall is privately financed industrial building.

Already contracts, in 9 months, have topped $1,130 million. This exceeds any previous 12-month year on record. And the momentum is still rising.

Contracts for the first week in October total $64.4 million to bring the 40-week total up to $1,195.5 million. September averaged $55.7 million, August $44.3 million.

The year started with industrial building running below last year, as it was predicted it would. The first 10 weeks averaged $18.7 million each; the first 20, $20.6 million; the first 30, $22.9 million and the 40-week average has climbed to $29.9 million, fed by the $40-50-60-million weeks in August, September and October.

The biggest rate of increase comes from the metal working industries. Metal refining and rolling plants put under contract in the nine months total $106.6 million, a 206% increase over last year. The largest volume of awards comes from the process or chemical plants, $351.4 million, up 47% over last year. Public utility power plants at $196.5 million are running 7% behind the peak rate of a year ago. General unclassified factories at $106.8 million are 28% ahead of last year, food plants at $98 million for the nine-months are 31% more than in 1949.

1. Industrial building-contracts awarded by types of industry

Industry	1950	1949	% Incr 1950
Railroad	$13,668,000	$7,516,000	+82
Auto Serv	33,799,000	24,374,000	+39
Pub Util	196,536,000	212,099,000	−7
Process	351,401,000	239,071,000	+47
Food	97,986,000	74,615,000	+31
Met Ref & Rl	106,589,000	34,837,000	+206
Auto Factories	39,670,000	29,058,000	+37
Aircraft	3,031,000	466,000	+550
Foundries	16,044,000	1,792,000	+795
Mach & Prts	125,955,000	66,863,000	+88
Radio	5,540,000	953,000	+481
Textiles	23,262,000	10,290,000	+126
Wood Ind	8,802,000	4,110,000	+114
General	106,827,000	83,666,000	+28
Refr & C Stg	1,860,000	2,313,000	−20
	$1,130,970,000	$792,023,000	+43

The largest volume of building has been in 11 states topped by Texas with $142.7 million in nine months. Ohio has $109.8 million, Pennsylvania $100.7 million, Illinois, $96.1 million in new plants put under construction through September. In the next highest group are West Virginia $54.8 million, North Carolina $54.8 million, Alabama $54 million, New York $50.5 million, Indiana $50.4 million, Kentucky $44 million, Missouri $42 million.

- **South leads.** This put the South into a strong lead in the increase in new industrial plant valued at $297 millions for the nine months, this new capacity is up $223 millions or 310% over last year.

2. Industrial building-contracts awarded by geographical distribution

Areas	Nine Months 1950	Nine Months 1949
New England	$16,513,000	$34,691,000
Mid Atlantic	196,077,000	126,745,000
South	296,952,000	73,971,000
Middle West	308,261,000	173,797,000
West of Miss	255,246,000	219,975,000
Far West	57,921,000	162,844,000
Most active states		
Texas	$142,657,000	$145,616,000
Ohio	109,787,000	54,894,000
Pennsylvania	100,712,000	67,606,000
Illinois	96,097,000	60,172,000

California has dropped 75% below its high record of last year and with it has brought the industrial building volume in the seven far western states down to $58 million for the nine months, 64% below last year's corresponding volume.

Texas, although it tops all other states in volume this year is $3 million under its $145.6 record for 1949.

While contract volume has been mounting such a spectacular show the backlog of proposed industrial building has increased too. New projects have come into the planning stage so fast that they have replaced those moved out of the proposed backlog to go under construction and they have added another $479 millions to the backlog to push it up to $4,893 millions.

The big state backlogs are topped by Texas with $1,007 million. Ohio is second with $458 million, Indiana third with $362 million, Pennsylvania fourth with $330 million then California $328, New York $293 million, New Jersey $200 million.

3. Industrial building backlog of proposed construction, by geographical distribution

Areas	September 30 1950	September 30 1949
New England	$90,053,000	$83,524,000
Mid Atlantic	870,415,000	864,555,000
South	613,803,000	483,603,000
Middle West	1,125,908,000	893,264,000
West of Miss	1,680,552,000	1,661,202,000
Far West	512,334,000	427,482,000
United States	**4,893,065,000**	**4,413,630,000**
Largest states	**1950**	**1949**
Texas	$1,006,593,000	$1,062,694,000
Ohio	458,281,000	367,447,000
Indiana	362,326,000	246,038,000
Pennsylvania	330,347,000	375,587,000
California	327,712,000	275,252,000
New York	292,810,000	244,891,000
New Jersey	200,294,000	192,854,000

The largest increases in their backlogs of industrial building proposed are in Indiana up $116 million for the year, Ohio up $91 million, California up $52 million, New York, up $48 million.

Both Texas and Pennsylvania drew on their backlogs for their high contract volume to date this year. Texas has pulled its backlog down $56 million below last year's record, Pennsylvania has reduced its backlog by $45 million.

This mounting volume of industrial building is fed by defense capacity needs and is being financed privately. Some government-financed plants are going ahead too. The Atomic Energy Commission building thus rates as public. And a $35-million contract was negotiated this week to complete a Navy owned rocket plant, also public and not included in the private building totals.

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Lumber price sykrocketing tapers off, backs down

Lumber prices have dropped $5 to $10 a thousand board feet in New York since last week's monthly price round-up. This brings pine, in truck loads delivered, down to $120-125 for 1x6s (a drop of $9 and $10) and 1x8s down $8 and $9 to $124-129. The drop for 2x4s and 2x6s is $5 and $10 to $115-120 and $120-125 respectively. A $5 drop for 2x8s and 2x10s brings them down to $125-130 and $130-135 respectively. Fir is down $5 to $120-130 for 2-in material.

Before this drop in New York City, pine prices were down in the earlier 20-cities round-up only in Cleveland. Fir was down in Detroit, Birmingham and St. Louis.

This brought the average price (20-cities average for 2x4s) at the start of October down in four cities. It held at the previous month's value in ten cities and was up in six cities.

The rises in those six cities, however, were enough to raise the 20-cities average for the month 2%, 1.1% for fir and 3.1% for pine. But this is a sharp tapering off from the 6% rise for fir in September, 4.5% for August, 3.1% in July, 7.6% in June, 3.1% in May and March and 2.4% in April.

The 3.1% price rise for pine in October compares with jumps of 11.2% in September, 4.4% in August, 3.8% in July, 5.7% in June, 2% in April, 3.8% in March.

Lumber production has topped new orders for seven consecutive weeks, and new orders this year have dropped below their counterparts last year for several weeks, so the worst pressure is off lumber prices.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 81, went to press.)

Clark Hill Dam Power House—J. W. Bateson Co., Inc., Dallas, Tex., and Stolte, Inc., Oakland, Calif., were low at $7,079,790 when the U. S. Engineers, Savannah, Ga., opened bids October 5 for Clark Hill Power House and appurtenant works at Clark Hill Dam, in Savannah River between Georgia and South Carolina.

State Highway Program—$53,708,900 for the 1951 highway budget was announced by H. E. Bailey, Oklahoma State Director of Highways, Oklahoma City, Okla. Some of the biggest road projects ever contemplated by the State of Oklahoma will be included in the 1,030-mile program.

Chief Joseph Dam—The U. S. Engineers, Seattle, Wash., have postponed opening bids to November 9, for the $30,000,000 Chief Joseph Dam, across the Columbia River, near Bridgeport, Wash.

Highway Bridge—American Bridge Co., Cincinnati, O., will build the highway bridge across the Chickamauga Dam, over Tennessee River, near Chattanooga, Tenn. at $3,352,100. The Tennessee Valley Authority, Chattanooga, awarded the contract and will do $625,000 additional work at site with own forces.

Generating Plant—A $35,000,000 generating station, on the Saint Clair River, between St. Clair and Marine City, Mich., is planned by the Detroit Edison Co., Detroit. Paul W. Thompson is vice president in charge of engineering.

Reduction Plant—Kaiser Engineers, Inc., Oakland, Calif. will construct rectifier building, potline buildings, storage plant, office, carbon baking furnace and carbon press building at Mead Reduction Works, Spokane, Wash., for the Kaiser Aluminum & Chemical Corp., Oakland, Calif. Cost is estimated at $3,700,000.

Hospital — McGough Brothers, St. Paul, Minn., have been awarded contract for St. Michael's Hospital at Grand Forks, N. D. Estimated cost is $3,000,000.

Bond Election—Voters of Arlington County, Arlington, Va., will hold election November 7, for $7,450,000 bonds for school construction and improvement. This area is regarded as one of the nation's most critical areas of overcrowded schools. $2,617,000 bonds will be considered for expanding sewage treatment facilities for the county.

Sulphur Plant—Texas Gulf Sulphur Co., Houston, Tex., awarded contract for the company's fifth sulphur plant at Beaumont, Tex., to Consolidated Western Steel Corp., Orange, Tex. Cost will exceed $2,000,000. Plant will serve new mine in Spindletop Field and will be completed in about one year. The company has plans underway for a $5,000,000 mixing plant at Beaumont.

Apartment — Lewis Heights Corp., Arlington, Va., has been selected as sponsor to construct, manage and finance 350-unit housing project, at Fort Belvoir, Va. Sponsor will do own construction and cost will be about $3,000,000. The Commanding Officer, Military District of Washington, D. C. let contract. Mills & Petticord, Washington, D. C., are architects.

Dam and Hydroelectric Plant—Lewis County Public Utility District, Chehalis, Wash., plans 80-ft. high dam and hydroelectric plant at Packwood Lake, Packwood, Wash. Cost will be about $7,000,000. W. S. McCrea, Tacoma, Wash., is engineer.

Refinery—Continental Oil Co., Houston, Tex. is taking bids for construction which will double the existing capacity of oil refinery at Lake Charles and a connecting pipe line. Estimated cost is $10,000,000.

Science Building—Notre Dame University, South Bend, Ind., awarded contract for construction of science building on campus to Sollitt Construction Co., Chicago, Ill., at $2,098,000. Maginnis & Walsh, Boston, Mass., are architects.

Water System—City of Wilmington, Del. will soon take bids for water filter plant at Porter Reservoir to cost about $3,000,000. Metcalf & Eddy, Boston engineers made study for project. W. Compton Wills is Water Department engineer.

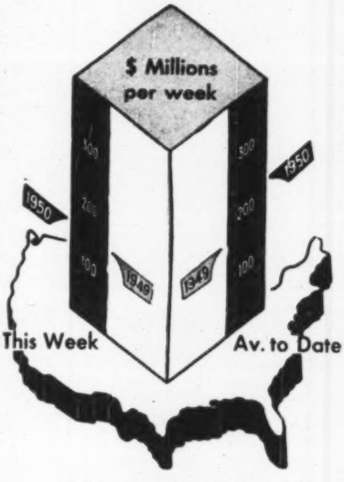
Bond Issue—$5,325,000 bonds were approved by the voters of the City of Charlotte, N. C. and Mecklenburg County for the construction of schools.

Schools—Compton Union High School and Junior College District, Compton, Calif. will hold an election October 20 on $3,600,000 bond issue for junior college district and $3,500,000 bonds for high school district. Planned construction for both districts is $13,000,000.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost	Oct. '50	534.44	256.91	112.03
Bldg. Cost	Oct. '50	396.23	214.19	112.63
Volume	Sept. '50	390	171	139



Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

	Week of Oct. 12, '50	Cumulative 41 wks 1950	Cumulative 41 wks 1949	% chge
Federal	$11.3	$990.2	$873.0	+13
State & Mun.	57.3	2,947.0	2,540.2	+16
Total Public	$68.6	$3,937.2	$3,413.2	+15
Total Private	88.1	5,471.9	3,034.0	+80
U. S. Total	**$156.7**	**$9,409.1**	**$6,447.2**	**+46**

Contracts by type of work

	This Week	Cumulative 41 wks 1950	Cumulative 41 wks 1949	% chge
Waterworks	$2.0	$182.6	$168.5	+8
Sewerage	3.1	214.7	207.0	+4
Bridges	10.7	302.5	279.8	+8
Highways	19.9	1,012.8	754.9	+34
Earthwork, Waterways	1.5	333.4	439.1	−24
Buildings:				
Public	24.4	1,338.3	988.0	+35
Housg., pub.	3.1	240.9	328.7	−27
Housg., priv.	33.9	2,734.9	1,383.9	+98
Commercial	12.5	794.6	471.7	+68
Industrial	36.7	1,232.2	824.9	+49
Unclassified	8.9	1,021.9	600.8	+70

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 41 wks 1950	Cumulative 41 wks 1949	% chge
Non-Fed. & Fed. Aid	$522.0*	$432.5†	+21
Corporate Securities	1,594.3	1,897.8	−16
State and Mun.:			
Excl. Housing	1,737.3	1,768.1	−2
Housing	542.0	620.6	−13
FEDERAL	2,963.4*	1,711.7†	+73
Total Capital	**$7,359.0**	**$6,430.7**	**+14**

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* Mandatory cutback must come out when determined. † Includes appropriations not passed until Oct., 1949.

To check dam water level by automatic radio plan

Plans have been worked out by the Corps of Engineers for automatic checking by radio of water levels in the Bonneville Dam reservoir on the Columbia River. Under the system the powerhouse at Bonneville Dam will be able to chart exact water depths at three points up river from the dam, giving operators of power units at the dam up-to-the-minute reports on the water supply approaching the turbines and generators.

The three gaging stations will be installed in concrete towers, each about 50 ft high, which will be erected at Stevenson, Wash., 6 mi. from the dam, Hood River, Ore., 24 mi. away, and Lyle, Wash., 37 mi. upstream. Each tower will be fitted with a system of gears and revolving arms which will produce code signals showing water level within .01 ft.

This is to be accomplished through operation of a radio network. A transmitter at the Bonneville powerhouse will send a tone signal to a relay station on the side of Augsburger Mountain, 15 mi. east of the dam. This station will relay the tone to the gage station which is tuned to that tone, and the signal will activate the transmitter in that station, which will in turn operate the coding arm and send a message back to the relay station giving the water depth at that instant.

After the coded signal reaches the powerhouse and is recorded, the tone will be changed and the process repeated with another station, and so on six times an hour.

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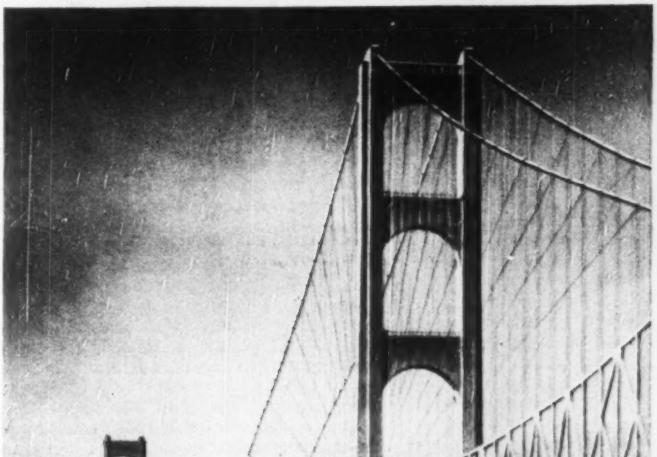
Mason contractors form association at Mackinac

Mason contractors meeting at Mackinac Island, Mich, have formed a new organization which they call the Mason Contractors Association of America.

The three-day meeting terminated in the election of officers and the selection of Washington, D. C., as the city in which the organization will hold its next meeting, in February 1951.

Marshall E. Harrison, of Kansas City, Mo., was elected president, Norman Bouchard of Chicago, vice president, and R. D. Fulcher, Jr., of Nashville, Tenn., and Harry Cohen, of Chicago, secretary and treasurer.

Those attending the meeting represented the mason contractors of nine states. Groups or individuals who join the association prior to its next meeting will become charter members of the organization. Temporary offices have been set up in the Board of Trade Building, Chicago, Ill.



Nearly a mile between towers . . .

Proposed Messina Strait bridge would set all kinds of records

Except for the matter of money—about $60 million—this tremendous and handsome suspension structure is a practicable answer to an old dream—bridging the Straits of Messina between Italy and Sicily.

That, at least, is the claim of D. B. Steinman, New York consulting engineer who has designed it for an Italian company, Associazione Fra i Costruttori in Acciaio Italiani, with offices in Milan. It may be expected to be proposed to the ECA as a project to be built with Italian counterpart funds, although the many other claims to these funds are recognized as obstacles.

If built, however, the bridge would set world's records all over the place. It has a main span of 5,000 ft, or 800 ft more than the Golden Gate Bridge. Its side spans of 2,400 ft would in fact be longer than the main spans of all except two other bridges—Golden Gate and George Washington. Its piers would have to be sunk in water 400 ft deep to rock near the bottom of the Strait by the open caisson method. And its stiffening trusses, of the type developed by Steinman for the Florianapolis bridge in Brazil (ENR Nov. 13, 1924, p. 778), would attain a depth of 165 ft at the quarter points of the main span and the midpoints of the side spans.

These Florianapolis type trusses point up the design philosophy—which was to produce a structure of maximum rigidity to resist aerodynamic action, earthquake forces and railroad loading. In these trusses the depth varies with the bending moment, and the top chord, in the regions of greatest cable sag, is the cable itself. Supplementing the trusses on the proposed bridge would be a system of cable stays radiating from the towers at roadway level up to each panel point on the cables. Torsional rigidity is further aided by a double-deck cross section and by a double system of lateral bracing.

The bridge is 90 ft wide c to c of cables and trusses. Its construction is estimated to require 74,500 tons of steel, 46,400 tons of wire and 567,000 cu yd of concrete.

Water policy commission reports Dec. 1; agency to continue study may be asked

Squabbles between Interior and the Corps of Engineers discussed; water development program for 12 major river basins expected

President Truman's Water Resources Policy Commission is debating a recommendation that a permanent, independent agency be established to carry on the commission's work, which is due to end with a report to the President Dec. 1.

Commission members feel that there is a need for continuing study of federal water policies by an independent group. For example, they have accumulated a unique library of data and opinion on water resources and policies which they are reluctant to turn over to any of the existing agencies in the field—Interior, Federal Power Commission or the Army Corps of Engineers.

The commission's report probably will include a proposal that a new, continuing commission be designated to advise the President on water policy.

Meanwhile, the commission, named by President Truman last Jan. 3, is on the home stretch. The report due Dec. 1 must be sent to the printers within a month.

• **Two major fields discussed**—At least two major fields of water power controversy will get full consideration in the report.

1. River basins. A commission committee has prepared a "comprehensive program for water development and conservation" for twelve major river basins.

2. Inter-agency disputes. This will include the long-standing squabbles between Interior and the Corps of Engineers—considered by the Hoover Commission—as well as the newer scrap between Interior and the Federal Power Commission over licensing private power development on streams where Interior has hydro plans.

• **Commission members**—Members of the commission are: Chairman Cooke, a Philadelphia consulting engineer and first administrator of the Rural Electrification Administration; Leland Olds, former FPC Chairman; Samuel B. Morris, general manager and chief engineer, Los Angeles Department of Water and Power and former president of the American Public Power Association; Paul S. Burgess, dean of agriculture, University of Arizona; Lewis Webster Jones, president, University of Arkansas; Gilbert F. White, president, Haverford College; and Roland R. Renne, president, Montana State College.

The commission has recruited a small staff of experts from college and university staffs and a larger force of personnel on loan from federal agencies.

Views and information have been sought in letters sent to approximately 750 agencies interested in federal water development, letters to state officials and college officials, in consultation with a group of economists and sociologists and through a series of eight conferences held in different cities during June and July.

An outstanding contribution to the commission's work was a report made by an EJC task force last spring. This report was covered in ENR July 6, p 25.

• **Commission's divisions**—The commission's eleven major divisions are discussed below.

Federal power policy is being considered by an eight-man committee. The committee's 10-point study is designed to cover the whole problem of federal power development and to review present policy.

A less formal committee on river basins is preparing reports on 12 major river basins.

Another more or less informal committee is making a survey of legal aspects of federal water policy.

Here are the other WRPC committees:

Committee on river program analysis will report on general river development problems. E. A. Ackerman, chairman.

Committee on evaluation of constructed projects will analyze typical water resource projects as a guide to future project selection policy. John C. Beebe, chairman.

Committee on coordination of planning and project selection will consider objectives of water projects and timing of the different phases of projects and programs. John A. Short, Missouri Conservation Commission, chairman.

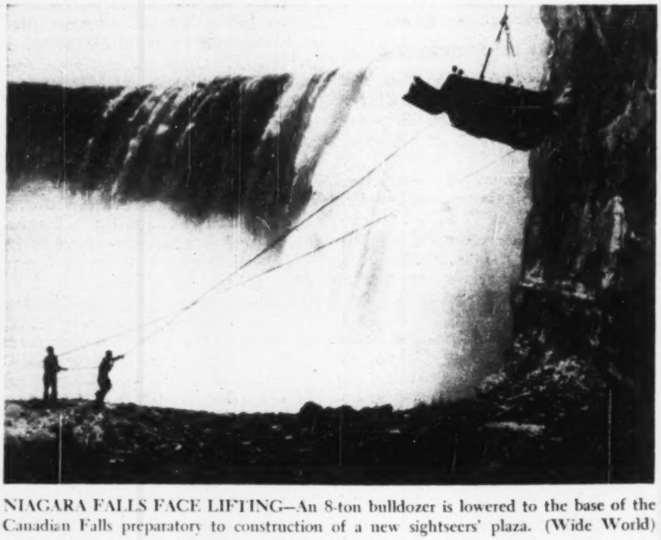
Committee on standards for basic data will determine essential information needed for planning of river basin projects. W. C. Lowdermilk, chairman.

Committee on water resources policies involving land use economics will study land-water relationships and policies. David Weeks, professor of agriculture economics, University of California, chairman.

Committee on reimbursement will try to develop "more equitable sharing of responsibility for the cost" of water projects. Horace M. Gray, director of the Institute of Government and Public Affairs, University of Illinois, Jewell J. Rasmussen, economist, University of Utah, co-chairmen.

Committee on recreation consists of the members of the existing federal inter-agency committee on recreation and two representatives of the commission, Ackerman and Isabel Picken of the Missouri Conservation Comm.

Committee on domestic water navigation projects and national transportation policy will appraise federal policies in the field of water transportation. C. E. Childe, Washington, transportation consultant, chairman.



NIAGARA FALLS FACE LIFTING—An 8-ton bulldozer is lowered to the base of the Canadian Falls preparatory to construction of a new sightseers' plaza. (Wide World)

Suitable damsite found for B. C. aluminum project

First major obstacle in the construction of a $500 million aluminum industry in British Columbia by Aluminum Company of Canada has been removed with the announcement by company engineers that a suitable main damsite has been proved up at Nechako Canyon in Tweedsmuir Park.

Last year exploration showed possible damsites had glacially-deposited bottoms impracticable for dam building. The new location, however, is of rock suitable for a 300-ft-high rock-filled structure. The dam would halt the eastward flow of water of the Nechako River, which drains Ootsa, Whitesail, Tetachuck, Tahtso and other lakes in the huge watershed, and divert waters 150 mi westward to Tahtsa Lake, where they would be drained through a 10-mi tunnel through coast mountains to the proposed powerhouse located on the Kemano River, Gardner Canal. The scheme is designed to develop 1,500,000 hp.

Drillers now are working on the site of Nanika River Dam, which would divert Nanika Lake waters to Tahtsa Lake to provide sufficient power for the first phase of development. Drill teams also are investigating possible low points along the reservoir rim.

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Pipe-line co., contractor sued for property damage

Charging that "tremendous and violent explosions" during pipeline construction damaged houses and wells, two Louisville, Ky. property owners have sued two defendants for $23,500. The defendants are the Texas Gas Transmission Corp. and the Williams Bros. Corp., the latter being pipeline contractors on a job owned by the former.

The suit charges that when the two firms were putting in the Texas-to-Ohio gas line near Louisville in October 1949, three explosions damaged three houses, a cistern and two wells, property of the complainants. One well is claimed to have been rendered impure and the other to have run dry.

A statement from the Texas Gas Transmission Corporation says that the residential properties in question were located more than a half mile from the blasts of the contractors laying the Texas-to-Ohio pipeline. According to John Kirtley, TGT public relations director, it was necessary for the contractor to blast rock in the pipeline trench.

CALIFORNIA FIRE FIGHTER—One of 53 concrete catchment basins built in the mountains behind Pasadena, this tank holds 5,000 gal. of water for fighting forest fires. Robert A. Bulkley, civil engineer in the U. S. Forest service, built the water collectors, and is shown lifting the perforated tank cover at the center of the catch basin. (Wide World photo)

Acid water: Potomac paradox

A paradox of pollution abatement along the Washington, D. C. area of the basin was reported to the Interstate Commission on the Potomac River Basin at its ninth annual meeting in Oakland, Md.

By strange coincidence, the better conditions being introduced on the North Branch of the river—above Cumberland—by industrial waste treatment at one plant has introduced problems for other plants using the water farther down stream.

The West Virginia Pulp and Paper Co. at Luke, Md.—25 or 30 mi. above Cumberland—is spending $1,500,000 to change its process and remove chemicals, thus reducing the alkalinity of its discharge. But it so happens that the North Branch carries acid mine waters. Below the paper plant, the pH value of the river water has been in the range of 8 to 12.

- **Acid water results**—Improved processing will reduce the pH to about 3.5 to 4, and the industries downstream will take acid water from the stream. Among the large users are the Celanese Corp., the Kelly-Springfield Tire Co., the Potomac Edison Co., and the City of Hagerstown—in addition to many smaller users.

Thus one industry, by abating pollution, is creating water problems for other plants. To help meet such problems, the commission is considering a coordinated research program on acid mine wastes with states (Pennsylvania and West Virginia are two) that are now carrying on research in this field. A combined program would bring together greater resources for the task.

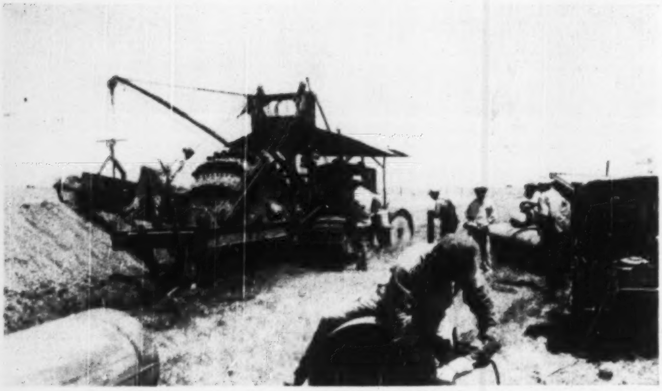
Pollution control is likewise being actively pushed by the Celanese Corp. This rayon manufacturer has studied the origin of plant wastes and expects to invest more than $1,000,000 of its $6,000,000 plant-improvement program in further reducing flow of organic wastes into the river, already cut 26% since 1948. Celanese hopes to treat production line wastes on trickling filters, as American Viscose is doing at Front Royal, Va., on the Shenandoah, also a Potomac branch.

- **Maryland issued orders**—Offending industries and municipalities, particularly the City of Cumberland, are under order by the Maryland Water Pollution Commission to build works and have them in operation for abatement of pollution by Sept. 15, 1951. Some progress is being made, but the order manifestly cannot be carried out in full by the specified date.

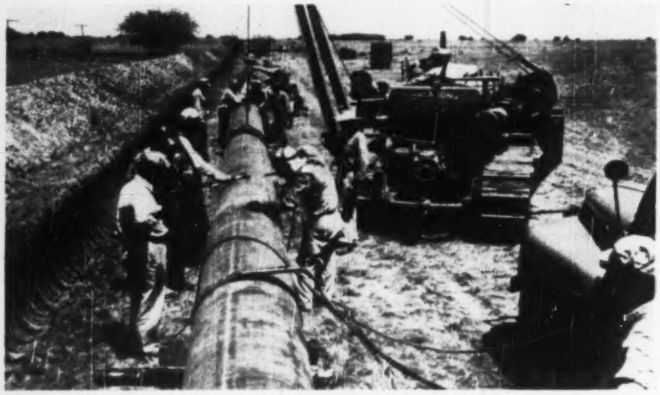
All elements were represented at a round-table conference on pollution conditions in the Luke-Cumberland Area. W. F. Moseley, chairman of the Allegany Metropolitan Commission, told of the problems on community waste treatment.

A bill before the Maryland legislature would help the communities greatly in financing their treatment plants, Moseley said. The proposed measure would set up a state agency that could lend money to communities on favorable terms and, further, could construct and operate the treatment works. Originally intended to apply only to the Maryland portion of the Potomac River Basin, the bill has been broadened to include the entire state.

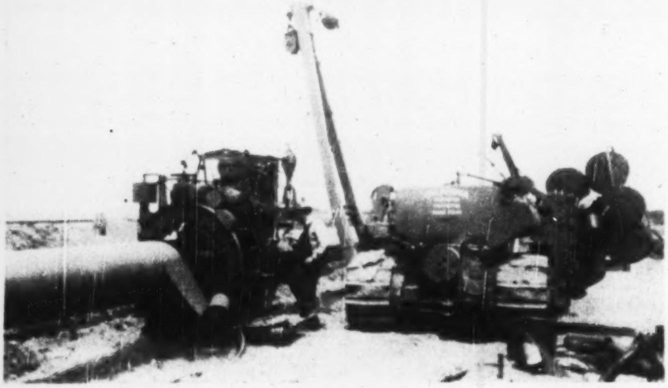
Pipelining on the King Ranch



EASY DIGGING in the lower Rio Grande valley. Wheel-type trencher cuts 48-in.-wide ditch 5 ft deep to receive 26-in. gas pipe. Workman buffs 30-deg (from vertical) the bevel on pipe to assure perfect weld. (Bob Bailey photo)



FIELD WELDING joins pipe-lengths to form long sections that will be coated and lowered into trenches as units. Final one of three beads going on here. Line-up clamp was used for first. (Bob Bailey photo)



COATING AND WRAPPING machine rests. In action, pipe hangs from sideboom; machine travels on cleaned and primed pipe, spraying 3/32-in. 400-deg F. coal-tar enamel, unreeling 18-in. wide asbestos felt. (ENR staff photo)

Texas' immense King Ranch is a million-acre domain sprawling over several counties along the level Gulf Coast on the edge of the Rio Grande Valley. It is famed for its herds of Santa Gertrudis cattle, a truly American breed developed by the ranch, and for its champion race horses, including Middleground, the most recent Kentucky Derby winner.

But the interest there is not all agricultural.

King Ranch also is dotted with oil and gas wells and is crossed by one of the nation's principal natural-gas pipeline systems, that of the Tennessee Gas Transmission Company, Houston.

The company, which serves the Appalachian states, now is extending its main line on to Buffalo, N. Y., and is seeking Federal Power Commission authority to extend farther on, to New England.

To provide more gas-transmission capacity for new business the company is "looping" its line—to "loop" means to build a parallel line. (50 ft away from the original line, in TGT practice).

Looping began this spring near the lower end in King-Ranch territory. The country down in the Rio Grande valley is flat and the ground digs perfectly, so it wasn't difficult for the contractor to make a mile a day when pipe deliveries were on time at sidings in nearby towns.

• **Special conditions**—But pipelining on the King Ranch had some unusual angles, most of them in the interest of agricultural science. For instance certain fences had to be left intact; lines of trees could not be cut down; and all machines, materials and men entered and left the domain through guarded gates.

Normally a pipeline contractor can cut fences wherever access is necessary, as long as he guards the opening and restores the fence after he is finished. But some advanced animal-breeding experiments are being conducted on the ranch, so they took no chances with breed-contamination.

Rights of way normally are cleared, but King Ranch tree lines have been planted for wind-erosion control in this dry climate. The guarded gates further guarantee the security of livestock experiments.

The special condition resulted in quite a bit of extra equipment-moving, hand digging at fences and, in the case of tree lines, hand-tunnelling among tree roots. However, on most of the job modern mechanized pipelining was unhampered. The accompanying photographs illustrate mechanized procedures.

• **Owner supplies materials**—TGT lets its pipeline work to contract, assuring uniform quality of the work by two means:

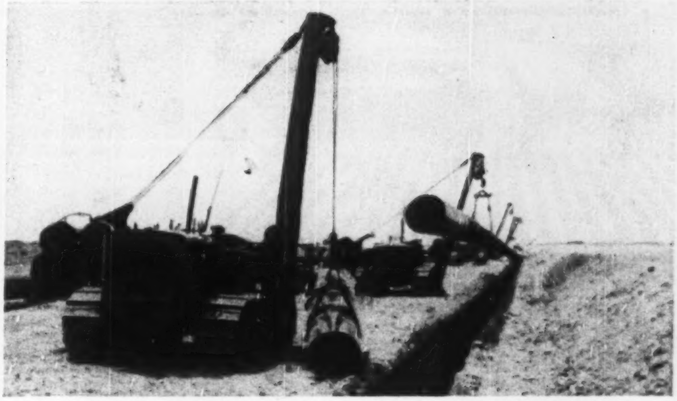
1. Close inspection; and 2. furnishing major materials. These materials include the pipe itself, plus primer, enamel and wrapping for the pipe. Materials are delivered to the contractor's trucks F.O.B. a nearby rail point. Proper care of materials subsequent to delivery is covered by the contract specifications.

Inspection is aided by a field X-ray machine (for welds) and by a high-voltage detector that is run along coated pipe before and after lowering-in, to ferret out "holidays", or spots that were missed in the coating and wrapping. Furthermore, the company examines all of the contractor's welders for competence before they work on the line. An individual welder's responsibility for his work is assured by the requirement that he chalk his initials on every weld he makes. Standard tests occasionally are made on coupons cut from the men's welds.

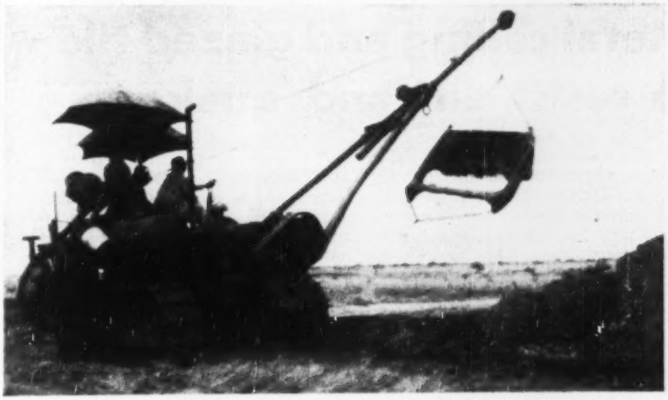
• **Contractor's equipment**—On the King Ranch job, Oklahoma Contracting Corp., Dallas, Texas was the contractor.

In the one spread that worked on the ranch there was almost a million dollars worth of equipment, as follows: 13 side-boom tractors, (mostly D-7s); 2 bulldozers; 5 tow tractors; 2 48-in. trenchers; 1 backfiller; 4 cranes and backhoes; 2 5-ton low-bed trailers; 6 trailer trucks; 4 winch trucks; 12 trucks; 14 pickups; 22 portable welding machines; 2 10-bbl trailer kettles for pipe enamel. (These kettles are called "dope pots.")

For Oklahoma, Panama Shiflett was superintendent. H. A. Johnson was spread superintendent for TGT, under G. L. Murray, district superintendent. Chas S. Coates is vice-president in charge of operations and construction; W. C. McGee Jr., superintendent of operations; J. J. King, chief engineer for Tennessee Gas Transmission Co.



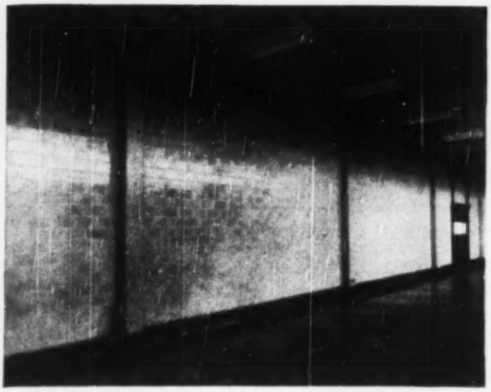
LOWERING-IN is accomplished by fleet of side-boom tractors with canvas slings that preserve the pipe coating. Excessive pipe-shrinkage stresses in cool ground are prevented by "snaking" pipe in trench, lowering only in cool hours. (ENR)



SIDE-BOOM also is adapted to backfilling. Machine backfilling proceeds only after pipe has been carefully lowered-in on earth or sandbag pads. Tractor walks on backfill when job is finished to aid settlement. (ENR)

WELDING SHOP comes to the field to give quick service for minor equipment repairs as well as for special pipeline-welding situations. Another field service is fueling, oiling and greasing equipment. Pick-up trucks do that job. (ENR)

STEEL ROOF PANELS for a Los Angeles bakery are plug welded to supporting beams and spot welded between panels to fully develop resistance to horizontal forces.



SHIPPING ROOM shows effective use for cleanliness of glazed tile walls and metal roof deck. In bakery proper supporting beams are vermin proofed.

Metal ceiling and glazed tile walls combined to resist dirt and 'quakes

TWO MATERIALS (one for the wall and the other for the ceiling) serve both structural and architectural requirements in a Los Angeles bakery now nearing completion. The governing requirement is that the interior be maintained spotlessly clean—no dust-catching recesses or materials can be permitted.

Tile walls and metal ceilings were considered the answer.

Glazed tile walls are easy to clean. Combined with brick, the tile is an effective bearing wall and it has a 4-hour fire-resistance rating.

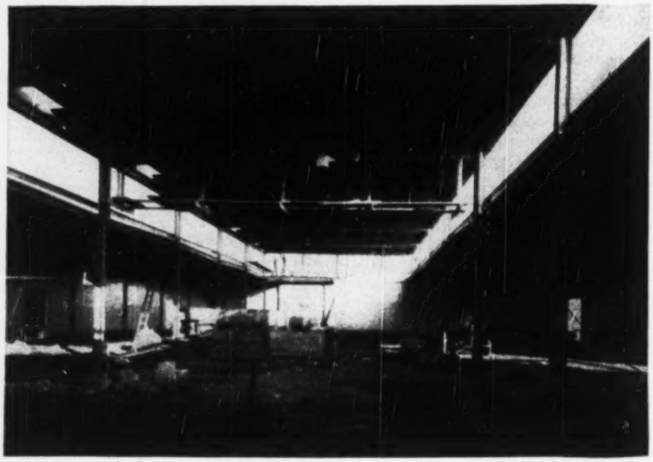
The smooth metal undersurface of light-gage cellular steel panels meets the architectural cleanliness requirement in the ceiling. Such units can also be erected to provide a solid diaphragm that transmits lateral forces induced by seismic or wind loading.

Where beams or other elements extend into the building, they are vermin and dust proofed.

The building is a new bakery belonging to the Continental Baking Co. Size of the structure is not great; the area it occupies is only 230 ft wide by 260 ft deep. The entire structure is one story except for an 80x130-ft section housing locker rooms and offices on the second floor. The significance of the building is the use of two well-known materials in a new manner.

• Structural use for glazed tile—Load-bearing, grout-lock brick walls are commonly accepted in structural practice. Glazed tile is usually used in filler walls or where the surface is architecturally important. However, in this Los Angeles bakery, glazed tile is combined with grout-lock brick to make a load-bearing wall. Here's how it's done:

The wall consists of an inner course of glazed, structural hollow-tile and an outer course of either common or grout-lock brick. The courses are laid up simultaneously with a space between in which the required reinforcing—both horizontal and vertical—and grout is placed; this is much the same as an ordinary grout-lock brick wall. Due to the high compressive strength of the structural tile, the wall figures as a bearing wall. With the reinforcing, the wall can easily resist the ordinary wind and earthquake stresses perpendicular to the wall surface. It has been approved as a 4-hour fire wall.



ROOF DECK UNITS were used as wiring raceways. This construction view shows wire being fed into a rectangular box carrying wires across the building. Hollow cells of the decking carry wires the length of the structure.

Aside from the structural functions, the glazed tile is important for cleanliness. Maintenance costs are low too. In a food plant such as this, cleanliness is vital. But glazed tile walls are also popular in other plants. A recent survey made by FACTORY magazine showed that 9 of 14 new small plants involved tile in permanent partitions.

• Prefab floor panels as diaphragms—The other important element of this building, metal floor panels, has been used extensively as flooring in buildings large and small over the country. However, this is believed to be the first instance where such units have been used as diaphragms to resist lateral forces.

Where earthquake forces are encountered, the floor and roof systems must be used to distribute the earthquake loads among the various vertical structural elements. To do this, the floor system must have some strength in the lateral dimension. To determine how much strength was involved, the manufacturer of this particular floor panel retained S. B. Barnes, a Los Angeles structural engineer well versed in design for lateral forces. He set up tests that were carried out by an independent testing laboratory. Results convinced southern California building officials that this type of flooring could be used as a structural diaphragm in low-height buildings.

The metal panels have a continuous coverplate (16-ga) with steel cells as stiffeners. In this building, the flat plate is placed down to take advantage of its smooth, metallic surface as a ceiling and to insure cleanliness. In this position, the plate acts as a diaphragm to transmit lateral forces and the cells act as vertical stiffeners. To get the stresses into and out of this diaphragm, the panels are physically connected (by welding) to channels or beams around the entire periphery of the ceiling or floor.

• Panel joints—These floor panels are usually joined by mechanically crimping a specially prepared section over a section of the adjacent panel. This, it was determined, would adequately develop a significant range of horizontal shear. However, where shears are high, as in the bakery job, adjacent units were welded to develop the full stress. Actually the welding wasn't continuous—it only involved a ¼x1-in. weld each 12 in. along the joining section.

The floor panels are zinc coated and thus are rust resistant. The welding was coated with rust-inhibitive paint.

Where these panels are used on the roof section, insulation board and roofing is mopped on top with no moisture-tight diaphragm required. Where it was used as both a ceiling and a floor, regular floor material was placed on top of a concrete filler.

The cells in the metal panels are used as raceways for electrical wiring. Rectangular metal raceways secured on the underside of the decking carry the wires across the building. Such a system eliminates exposed conduits which are unsanitary dust catchers.

This building will house a Hostess Cake bakery for the Continental Baking Co. Design of the structure was by Ellis Wing Taylor, architect and structural engineer, Los Angeles. Contractor was Harold Hodges.

Prefabricated floor panels were supplied by H. H. Robertson Co., Pittsburgh, Pa. Structural glazed tile was supplied by Kraftile, Niles, Calif.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York author of Legal Phases of Construction Contracts (McGraw-Hill)

Refusal of workman to undergo surgery

In an action recently brought by Raymond Mancini against George A. Fuller Co. and Merritt-Chapman & Scott Corp. to obtain workmen's compensation benefits, the Superior Court of Rhode Island issued an order directing the claimant to submit, within 60 days, to an operation for the removal of an intervertebral disk or forfeit his workmen's compensation.

Upon the application of claimant, the R. I. Supreme Court of that state issued an order allowing a review of the order issued by the lower court. The chief justice who issued the order indicated that he believed that reasonable co-operation by an injured employee was a necessary condition to his right to receive benefits, and that the reason for granting the reviewing order was that the court had "not had occasion to consider precisely the effect of an employee's non-co-operation occasioned by his failure to submit to a major operation where the court has found as a fact on evidence that it is reasonable to require him to submit to a curative operation. At least we have not particularly discussed the question whether such an employee, if he later offers to submit to the curative operation, may have it performed and have the necessary medical and hospital expenses incidental thereto paid by the employers."

The court in its opinion further stated: "In view of the novel question of law thus raised, and the desirability of settling the practice where the act (Workmen's Compensation Act) has not provided expressly for such contingency, we think we should exercise our discretion liberally by issuing the writ so that the pertinent legal question may be heard on its merit."

The right of a state industrial board to direct an injured employee to submit to a surgical operation is a question that has arisen in courts of other states. Thus the Appellate Division of the Supreme Court of New York has held (Palloni vs Brooklyn-Manhattan Transit Corporation, 215 App. Div. 634, 214 N. Y. S. 430) that workmen's compensation should be denied where the claimant unreasonably refuses to submit to an operation.

The reasonableness of claimant's refusal is a question of fact to be determined by the state industrial board, the court said, also that the board's determination, when supported by proper evidence, will not be set aside by the appellate court. In this case the claimant was directed to undergo an operation for a hernia, which operation was recommended by physicians, and the court held that in the absence of proof that the operation would be dangerous or fatal, the refusal to undergo the operation was not reasonable.

The appellate court, in its opinion, referred to a Maryland case (Dickson Construction & Repair Co. v. Beasley, 126 A. 907, 146 Md. 568) where that court stated: "A man cannot continue to receive compensation and at the same time refuse to submit to proper medical or surgical treatment, such as an ordinarily reasonable man would submit to in like circumstances."

Failure to perform

Where a contractor refuses to perform his contract, damages may be recovered for the difference between the contractor's bid and the actual cost to the owner of having the work performed by others. Likewise, interest on money borrowed by the owner to finance a construction project, accruing while the work is held up by a delay occasioned by the refusal of the contractor to perform, is a proper element of damage. In either case, it is immaterial that the owner made a profit on the whole venture.[1]

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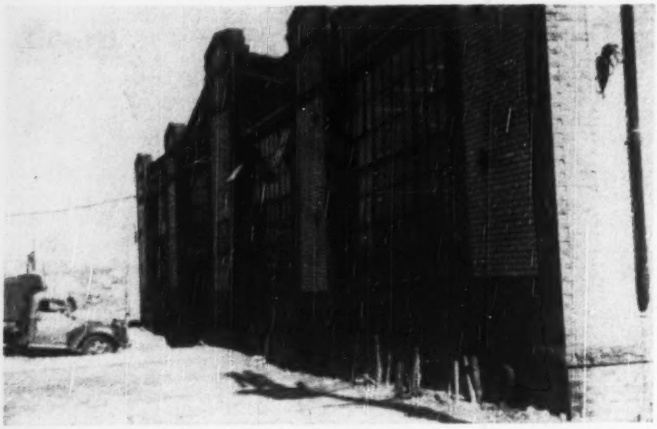
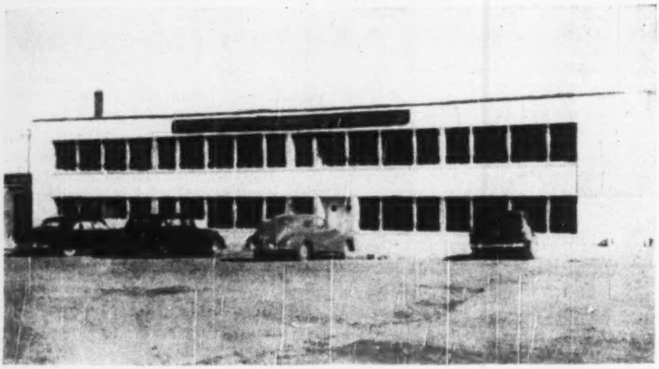
(1) Westland Const. Co. v Chris Berg, Inc., 215 P. 2d 682 (Supreme Court of Washington, March 7, 1950).



Settling building wall . . .



. . . rebuilt to eliminate underpinning

When the wall foundations of a 20-year old, two-story factory were found to be settling badly, the owners turned to Consulting Engineer Jacob Feld for help. They asked him to develop an underpinning scheme for leveling up the wall. But Mr. Feld came up with a better suggestion—one that not only improved the appearance of the building but saved money as well. He recommended that the wall be rebuilt of lightweight materials, thus relieving the foundations of the load causing the settlement.

Located near the south shore of the Bronx River, New York City, the factory was progressively becoming unsafe. The site is a former tidal marshland. It had been filled with rock and debris of unknown quality, and no attempt had been made at artificial consolidation.

Exterior walls consisted of 16-in. brick piers on a stone masonry, continuous foundation wall. The foundations were carried down at least 6 ft to rest on a recorded layer of "natural soil." Interior columns showed little differential movement, but the exterior wall suffered serious displacement.

The steel sash was badly racked, and much of the glass was broken. Maximum measured differential settlement within the structure was over 12 in. The marginal street along the front showed signs of area consolidation.

In considering underpinning, Mr. Feld found that the cost would represent a large percentage of the cost of the structure. If piles were used, the support they would receive from the ground would be uncertain. Also, the weight of the building was not sufficiently great to permit jacking the piles against it. Furthermore, if the exterior wall was underpinned, the interior column footings would also require added supports. And finally, the patching then required would make the exterior an unsightly monument to improper foundation design.

• Load reduced 75%—The owners accepted Mr. Feld's alternate solution: Remove the masonry walls, but retain the exterior foundation walls. Then, rebuild the exterior shell with lightweight materials, to decrease the dead load on the footings 90%. This would cut the total dead-plus-live-load unit pressure from two tons per sq ft to about one-half ton. With no allowance for necessary repairs and unforeseen contingencies, the total cost would be less than the most optimistic estimate for underpinning.

First, the work areas were blocked off with plywood partitions, so that factory operations would not be interfered with. Then, steel columns carrying longitudinal beams were set on a leveling course on the foundation wall at windows to pick up the floor beams. After that, the masonry piers and spandrels and the steel sash were demolished to street level.

• Lightweight wall—The new wall was then built. It consists of vertical, nailable 12-ga steel studs faced on both sides with asbestos-cement boards. Windows have glare-resistant tinted glass in aluminum frames. Sills, coping and trim are wood covered with aluminum.

To fit the new window widths, the steel studs were set 5 ft 3 in. on centers. They are continuous from foundation sill to top of parapet. Generally, they are 2x6-in., but in a part of the building where the second story is omitted, they are 2x8-in.

Girts attached horizontally on both faces of the studs at 2-ft intervals are 2½-in. nailable, light-gage steel channels. They are omitted at windows and doors.

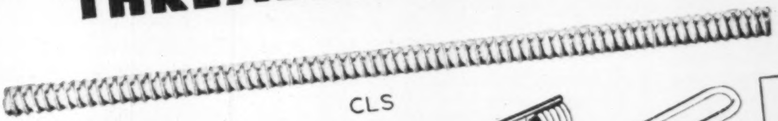
As a horizontal tie for the wall, a 6-in. runner is tied to each stud and to the floor beams just below the second floor. Also, an 8-in. runner is attached under the roof beams. And in the solid areas at each end of the wall, the outer pairs of studs are connected by diagonal bracing.

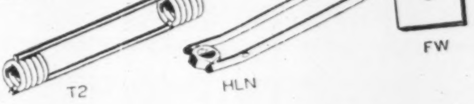
The spandrel at the second floor is faced with ⅜-in. thick flat sheets of asbestos-cement. Elsewhere, the exterior facing is corrugated. The boards are connected to the girts with stainless steel bolts, and stainless steel tees weatherstop the joints. The inside of the building is faced with ½-in. board.

The owner feels that he got a better building for his money. Temperature control is easier, and the advertising value of the exterior is an unexpected asset. Six-month's use of the renovated structure has disclosed no sign of further differential movements.

ENGINEERED TYING DEVICES, ANCHORAGES and ACCESSORIES for CONCRETE CONSTRUCTION

RICHMOND CONTINUOUS THREADED LAGSTUD





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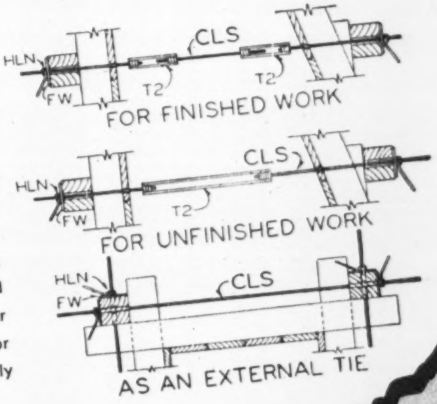
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A new method for obtaining undisturbed sand samples

Thomas B. Goode
**Chief, Exploration Section,
Waterways Experiment Station,
Vicksburg, Miss.**

A NEW METHOD—reliable, practical, and economical—of obtaining undisturbed samples of sand from below the water table has been developed by the Waterways Experiment Station of the Corps of Engineers at Vicksburg, Miss. The principal feature of the new method is the use of relatively heavy drilling mud to retain the samples in the tube during withdrawal from the bore hole. The samples are obtained with a Hvorslev-type piston sampler from uncased borings. A drawing of the 3-in. piston sampler is shown on Fig. 1. Samples having a diameter of 5 in. have been recovered with a similar sampler.

On one exploration project recently completed in the alluvial valley of the Mississippi River for the Mississippi River Commission, 121 sand samples averaging 2.3 ft. in length were obtained from 15 borings averaging 133 ft. in depth. A sample recovery of 93 percent was obtained. The average progress was ten samples per eight-hour shift.

The sampling procedure is basically the same as that used in obtaining undisturbed samples of cohesive soils from a cased boring with a fixed piston type sampler, except that the boring is not cased and is kept full of relatively heavy and viscous drilling mud throughout the procedure. The drilling mud prevents piping in the bottom of the boring and prevents the walls of the boring from squeezing or caving in.

Drilling mud is made on the job by mixing approximately three parts of powdered bentonite and one part baroid by weight into the circulating water until the desired weight and viscosity are obtained. Muds weighing from 65 to 75 lb. per cu.ft. (wet weight) have been used successfully in borings drilled to depths of 140 ft.

The sampler is always assembled with the lower face of the piston flush with the bottom of the sample tube, as shown in Fig. 1. It then is lowered through the drilling mud to the bottom of the boring until it is in contact with the sand (Fig. 2, left). The sampler drive is not started until a close contact has been made, thus insuring that drilling mud will not enter the sample tube between the top of the sample and the lower face of the piston.

Drilling mud that enters the sample tube through the vents in the sampler head is later forced upward by the piston and back out through the vents when the sample tube is forced downward into the sand to obtain the sample (Fig. 2, right).

The sample tube is forced into the sand in a continuous drive at a fairly uniform rate of penetration of approximately 0.16 ft. per sec. by a truck-mounted rotary core drill equipped with hydraulic feed and constant-flow control valve to regulate the speed of drive. The total force required to penetrate 2.5 ft. with a 3-in. tube of 16-gage steel ranges from about 1,000 lb. near the surface to about 8,000 lb. at a depth of about 125 ft.

Penetration resistance and rate of penetration are observed during each drive and recorded for each 0.5 ft. of penetration. A continuous recording indicator for obtaining these data mechanically has been installed recently on the drill rig. Screw-type earth anchors are used to prevent the drill rig from rising during the sampler drive.

After each sample is obtained, the boring is cleaned out and advanced by the rotary drilling method with a 4-in. dia. fishtail bit attached to the drill rods. The bit is rotated at about 60 rpm and advanced slowly. The cuttings are removed from the bottom of the boring by pumping drilling mud down through the drill rods and bit and up through the bore hole. The drilling mud is circulated at a rate of 20 to 25 gpm. Small baffles are welded on the bit below the jets to block downward flow of the drilling mud that might otherwise disturb the sand a considerable depth below the bit.

The 3-in. tubes presently in use have a cutting edge diameter of 2.97 in. and an "area ratio" of approximately 11 percent, which appear to be fairly satisfactory for obtaining undisturbed samples of sand. ("Area ratio" is the ratio of the area of the annular ring occupied by the sampler shell to the area enclosed by the cutting edge.)

Attempts were made to reduce the area ratio of the 3-in. tubes by using 18-gage steel instead of 16-gage. The lighter tubes were satisfactory in loose sands but failed through buckling wherever the penetration resistance was in excess of about 5,000 lb. Sample tubes 5 in. ID made of 11-gage metal have been used successfully to sample clean sands of low density at shallow depths. The high penetration resistance of the large tubes is beyond the capacity of the average drill rig used for soil sampling.

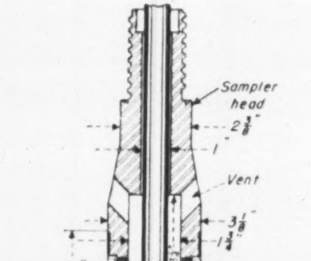


FIG. 1. THREE-INCH PISTON SAMPLER of the Hvorslev type used in taking undisturbed samples from uncased borings.

• Handling the samples—A perforated expanding packer (Fig. 4) must be inserted in the bottom of each sample tube immediately after the tube is lifted clear of the drilling mud in the bore hole; otherwise, low density samples start slipping out of the tube. After the packer is securely in place, the tube is removed from the sampler and accurate measurements are made to determine the sample length and recovery ratio.

The samples are not subjected to vibration or jarring and are maintained in a vertical position at all times until drained. The time required for proper drainage varies from 24 to 48 hours, depending on the amount and character of fines. Samples should never be permitted to dry out, since it is practically impossible to slice a dry sand sample satisfactorily or remove it from the tube in increments for density determinations.

After draining, all drilling mud and sand contaminated by drilling mud is removed from the top of the samples. Expanding packers then are inserted in the top of the tubes. Tubes containing samples for density determinations are then placed horizontally in a rubber-lined transportation rack and secured in a manner that will prevent them from rotating. The top side of each tube then is struck 50 light blows with a hammer, starting at one end of the tube and working toward the other with 25 blows, after which the procedure is reversed, thereby consolidating the sand. The tubes are then transported to the laboratory with the rack in a horizontal position.

Tubes containing samples that are to be used for slicing and photographing are not struck with a hammer but are transported as carefully as possible in an upright position in racks lined with sponge rubber to avoid all possible vibration. Methods of transporting samples to be used for triaxial tests and other strength tests are in the developmental stage.

Density determinations normally are made in the laboratory for each 3-in. increment of the sample selected for testing, the tube containing the sample being cut transversely into 3-in. lengths with a band saw. Loose samples will consolidate due to vibration and will not completely fill the tube. When the samples are cut into sections the amount that the sample fails to fill the tube is measured and recorded. The sample is pushed out of each 3-in. length of tubing, sliced, examined for stratification, and visually classified.

Care must be exercised to keep the sample tube horizontal at all times while it is being sawed; also, the tube should not be permitted to rotate about its horizontal axis from the position it was in when removed from the transportation rack. A unit weight determination is then made by conventional methods on each increment of the sample.

Density determinations are made in the field on projects where time is a factor, the determinations usually being made for each 3-in. increment of the sample. However, in some instances density determinations are made on longer sample increments.

Infrequently, the total sample length is measured and a single average density determined for the entire sample.

Photographs of the cup auger used to remove the sample from the tube in increments in the field are shown in Fig. 5. Samples are dried and weighed in the field in the conventional manner for unit weight determinations.

All of the sands sampled thus far have been highly stratified, as evidenced by the photographs of typical sliced samples shown in Fig. 3. The gradation of the sands sampled to date has ranged from fine to coarse with densities ranging from 85 to 105 lb. per cu.ft. The discoloration observed at the top of two of the samples shown was caused by penetration of the drilling mud. Such penetration normally is about 1.5 in. at the top and 0.25 in. at the bottom.

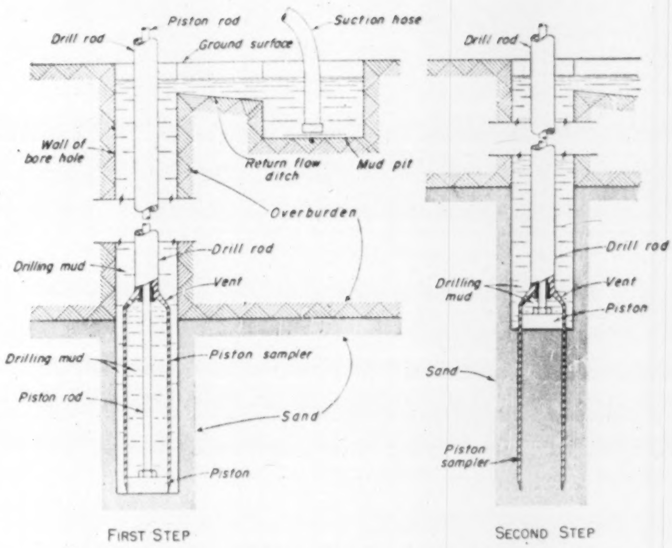


FIG. 2. **METHOD OF SAMPLING using drilling mud in the uncased hole. At the left is shown the sampler in position to start sampling, and at the right sampler has been driven and is ready to be removed.**

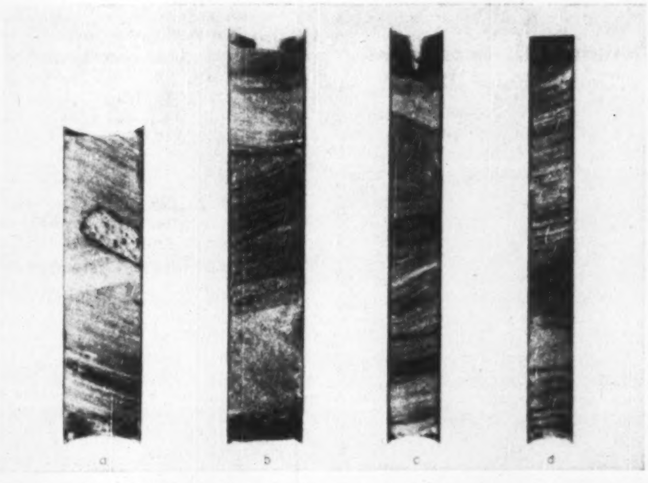


FIG. 3. **SAND SAMPLES obtained with 5-in. and 3-in. samplers at depth ranging from 39 to 110 ft. Two samples (b and d) show discoloration at the top due to intrusion of drilling mud, and sample a has a clay intrusion in the top half.**

• **Advantages of the drilling mud**—The phenomena responsible for the retention of undisturbed sand samples in the tubes during withdrawal from borings drilled with mud have not been analyzed fully. However, it is believed that the principal contributing factor supplied by the drilling mud is that it functions as a membrane on the bottom of the samples and, thereby, has two major effects contributing in part to retention of the samples in the tubes. First, a pressure is exerted upward on the bottom of the sample which, coupled with the natural tendency of the sands to arch in the tubes, may materially assist in preventing downward movement. Second, the membrane formed by the drilling mud is relatively impervious and prevents drainage of free water that otherwise would cause progressive erosion losses from the bottom of the sand sample.

In addition, the viscosity of the drilling mud prevents undue turbulence around the bottom of the tube, which frequently causes progressive erosion of sand samples during withdrawal from borings drilled with clean water.

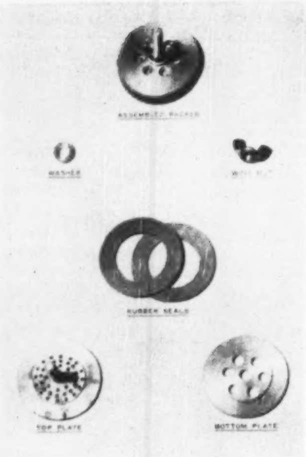


FIG. 4. PERFORATED EXPANDING PACKER that is inserted at the bottom of the sample tube as soon as it is lifted from the mud.

It is believed that the use of the drilling-mud method for obtaining undisturbed samples of sand from below the water table is more reliable and economical than any method previously used. Also, since the method does not require complicated and cumbersome equipment or materials hard to obtain, it is believed the method will come into widespread use and afford a means of obtaining much-needed data on subsurface sands that have not been available previously due to the lack of an economical and convenient method of obtaining the samples.

The method of undisturbed sampling of sand described herein was developed by the Exploration Section of the Embankment and Foundation Branch, Soils Division, at the Waterways Experiment Station of the Corps of Engineers, U. S. Army, Vicksburg, Miss. The writer is in charge of that section. Special acknowledgement for work in development of this method is made to J. K. Elliott, A. O. Brown, and D. P. Jones, all of the same section.

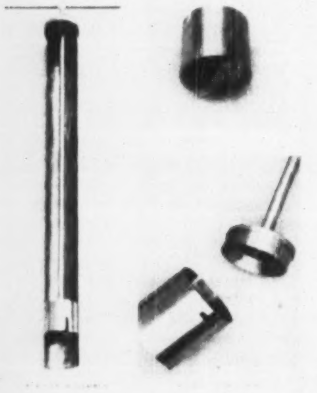


FIG. 5. CUP AUGER with which samples are removed from a tube in increments for field determination of density.

◆

Victoria B.C. Renovates its Ogden Point Docks

The deep sea docks of Victoria, B. C., at Ogden Point have been renovated on a large scale for the first time since they were erected in 1918. The shed is 700 by 200 ft and has a new concrete floor. Freight cars roll over rails laid on new ties on a newly-consolidated bed. There is a depressed track that runs down the center of the pier with a 1,048-ft concrete retaining wall on each side instead of the former timber cribbing.

The docks were completed in March, 1918, at a cost of $2,440,000 and a $250,000 modernization job has now been completed. The Ogden Point docks are operated by the Canadian National Railways.

Lumber is brought by barge from the company's yards at Port Ellice bridge to the ferry slip north of Pier B and is then moved on the dock railway system alongside freighters for loading. The docks are protected by a breakwater which was started in 1913 and completed in 1917.

Pier A, next the breakwater, is 1,000 ft long on its south side and 800 ft on the north. Pier B is 800 ft long on both sides. The two piers are separated by 300 ft of water.

Of solid construction, the piers represent 50 reinforced concrete caissons, each 35 ft wide, 80 ft long and 36½ ft deep. These were built at Esquimalt, floated into position and sunk to form the outside frame of the piers.

The central section was then filled with gravel. During the years the tide has oozed out this gravel between the cracks separating the caissons. Divers were sent down by the City Construction Co. of Vancouver, B. C., and 250 cu yd of concrete grouting were poured into the 51 underwater joints.

The new floor required 23,500 cu yd of concrete in Pier A, while the 210 posts supporting the trussed roof in the shed were mounted on three by three by one concrete slabs instead of on cedar footings as formerly. The vertical face of the pier and the filling between the caissons were gunnited to fill in places where the concrete coping had chipped.

At the shore end of Pier A and on adjoining ground, 16,460 sq yd of asphalt were spread on a base of 2,740 cu yd of crushed rock to provide storage and parking space. This will permit the storing of almost double the amount of lumber which could formerly be handled.

Alex Gall of the City Construction Co. was the superintendent on the job, working with J. A. Christie, resident engineer for the C.N.R., and under the direction of H. R. Wilkinson, C.N.R. divisional engineer for Vancouver Island. J. H. Spicer, another C.N.R. engineer from Vancouver, has also been active on the job.

The C.N.R. itself laid 1,600 ft of 6-inch transite water pipe to replace cast pipe formerly used along Pier A.

◆

Washburn Tunnel Diameter

The inside diameter of the Washburn vehicle tunnel under the ship channel at Houston, Texas, which was described in our issue of June 8, p. 32, is 28 ft, not 32 ft as stated in that article.

The outer steel tube has an inside diameter of 32 ft, but a reinforced concrete strength ring two feet thick was built inside this tube, which gave the circular upper part of the tunnel a diameter of 28 ft before the finish tile was applied.

Bypass For Boston

SEEKING A WAY OUT of the vast tangle of narrow, winding, heavily traveled streets that make up Boston and its satellite metropolitan area, the Massachusetts Highway Department is now pushing work on a $17,000,000 circumferential highway.

The new road, 22 miles in length, will connect the Newburyport and Worcester turnpikes in a sweeping half circle of limited access highway. It is part of an overall $100,000,000 plan for speeding traffic through congested areas throughout the state.

The circumferential route around metropolitan Boston is to be known as Route 128. It will involve a total of 45 bridges between the towns of Lynnfield and Wellesley, considerable fill over peaty and swampy areas, and a number of intersection structures. The new road will have two 24-ft roadways, with a 20-ft median strip. The highway will be limited access: There will only be eighteen points of entry or egress between the two ends.

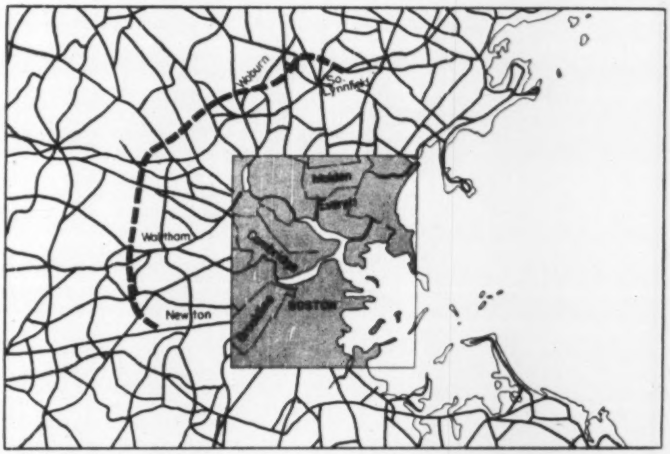
Plans for the circumferential route have been under consideration for more than a decade. But the state legislature only a year ago put through bills that raised $100,000,000 through bond issues. Route 128 money comes from this fund.

The public works department, under William F. Callahan, commissioner, hired the consulting engineering firm of Thomas Worcester, Inc., of Boston, and in a matter of a few months plans were ready for advertising bids.

Work on the route has moved extremely fast. The nine contracts let for the road show progress figures like this:

Contract No. 4478, from Lynnfield to Wakefield, let December 27, 1949, is now 37.6 percent complete, with completion scheduled for October 31. Contract No. 4521, from Reading to Wakefield, let March 28, is now 15 percent complete, with a completion date of June 1, 1951. Contract No. 4499, from Burlington to Lexington, let Feb. 10, 1950, is now 30 percent completed, and due for completion June 30, 1951. Contract No. 4500, at Lexington let February 10, is now 51 percent completed; contract No. 4486, from Reading to Woburn, let to the Lane Construction Co., on January 10, 1950, is now 21 percent completed.

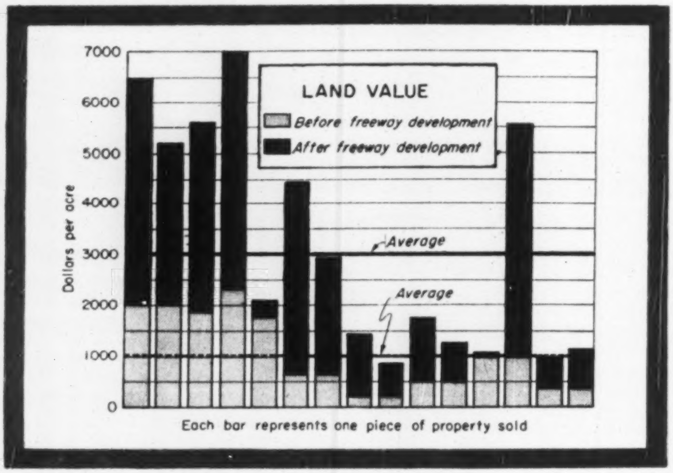
One of the problems in the construction is the Newburyport turnpike, into which the new circumferential road will debouch. This highway is now a two-lane roadway.



(ALMOST) ALL ROADS lead to Boston at present, but there'll be one way to get around the metropolitan area, when the new circumferential highway is completed.

PLENTY OF ROCK is available on the new location for numerous fill areas.

TERRAIN on the new location for the highway is varied. Here contractors push over a hill and begin placing fill in a swamp area.



INCREASES IN LAND VALUES along U. S. Highway 99 south of the city of Fresno, Calif., following conversion of that highway to a freeway.

How freeways increase property values

Frank C. Balfour

Chief Right-of-Way Agent
California Division of Highways

WHEN A STATE HIGHWAY DEPARTMENT proposes construction of a freeway around the business district of a town, there is instant opposition. Local merchants are convinced that such a program means their ruin. And when planning for the freeway reaches the stage where the right-of-way agents begin to make contact with affected property owners, the preliminary skirmishes indicate an all-out war. Property owners who are to have access to their land limited are convinced that such a limitation means total destruction of its value.

Likewise, roadside merchants who presently enjoy unrestricted access to the through lanes of an existing highway will stoutly maintain that they will be put out of business—if they are required to locate on a frontage road with limited access to the through lines.

Such reactions are natural, and until very recently the public agencies charged with development of adequate highway systems lacked factual information to show convincingly that they are without foundation. Only in one book, "Parkways and Land Values" by John Noland and Henry Hubbard, were there facts to indicate that parkways and freeways increased land values.

All that is now changed, insofar as California is concerned. We know now that land values along freeways increase generally—frequently in a spectacular manner. And what is more important in many respects, we also have convincing evidence that merchants along the streets of local communities from which through traffic is diverted by a freeway do more business—rather than less—as a result of the change.

The effect of the change on roadside merchants who find themselves moved back to a frontage road is equally beneficial to all but the fly-by-night stand operators. Many of the latter move on or give up, which is beneficial to the community as a whole.

What California has learned about the effect of freeways on property values and local business enterprises should be of value to other state highway departments.

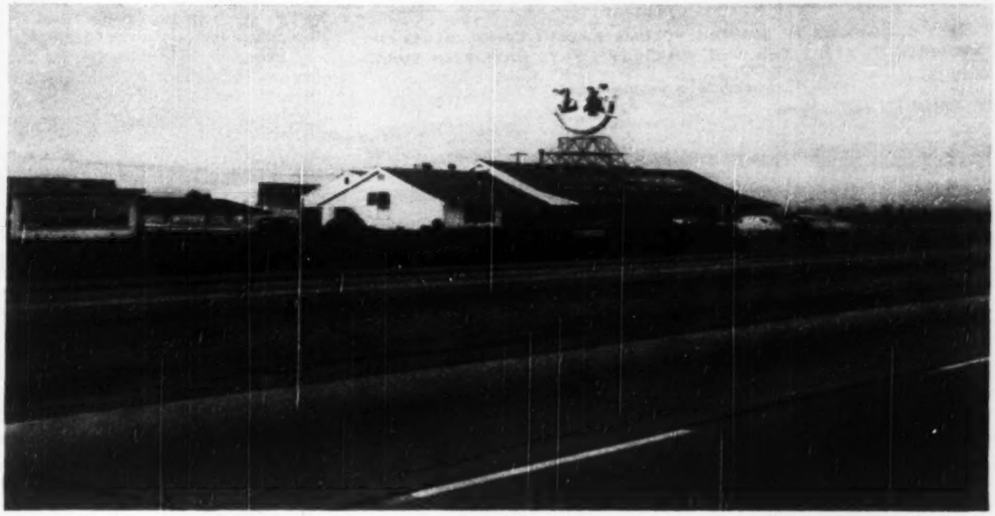
• Changes in land values studied— This information was assembled by a Land-Economics Section set up last year in the Right-of-Way Department. As new freeways are constructed this new section begins to collect data concerning the effect rerouting or through traffic has on retail establishments along the old route through the business districts of town; also the effect upon real estate and leasing values.

Similar studies are being made to determine the effect of conversion of existing state highways in rural areas to expressways where access is taken on a limited basis. Other studies are under way on highways where roadside business establishments, including service stations, motels and restaurants, now have direct access to frontage roads that connect with the through lanes of traffic only at points designated by the California Highway Commission.

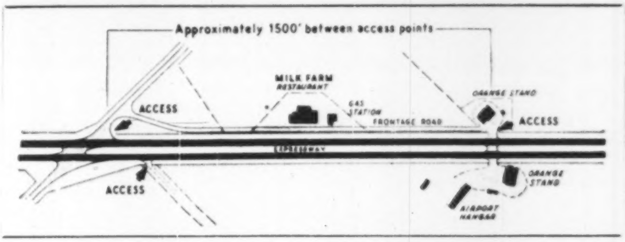
As part of these studies, analyses are made of the gross sales of all types of business affected by construction of the freeways. Sales by such concerns are compared with those of similar business enterprises in the same county that have not been affected in any way by the construction of freeways or expressways. Studies also are made of real estate sales, and informed persons in real estate offices, banks and other institutions lending money on real estate are interviewed.

The period of time covered by these studies is a minimum of four years in each case. It represents, wherever possible, the two years immediately preceding construction of a freeway and the two years following the opening of the new improvement to traffic.

The three completed studies analyzed for the purpose of this article cover cities or rural sections on main state highway routes, all of which carry a heavy volume of traffic. Many of the business establishments included in the studies cater primarily to the highway traveler.



THE MILK FARM RESTAURANT, which formerly had direct access to the lanes of U. S. Highway 40, did 25.3% more business during the first 18 months after it was moved back to a frontage road. Seven competitive restaurants still on the through lanes either did less business or gained less than 14%. The relation of the relocated Milk Farm Restaurant to the expressway is shown at the right.



It has been found that the most difficult type of business enterprise to handle in these studies is the roadside motel. This is so because state sales-tax returns are not available for comparison, since hotels, motels, and rooming houses are not required under California law to pay sales tax. Considerable data has, however, been developed in California studies.

Studies of economic conditions made by major lending institutions and the two principal motel associations in California confirm the highway division's conclusions that the roadside motel business is not in a healthy economic condition: Overproduction, or the law of supply and demand, has caught up with this type of enterprise.

• Three detailed studies completed—Detailed studies of the effect of freeways on land values and local business enterprises have been made recently by the Land Economics Section, each covering a different set of local conditions. One was of retail business establishments on Del Paso Boulevard, the main business street of North Sacramento (Pop. 6,016), which is just across the American River from California's capital city, Sacramento.

Del Paso Boulevard formerly carried a very heavy volume of commuter traffic as well as the through traffic from the San Francisco Bay area and Sacramento to the easterly border of California (along U. S. Highway 40), and the north-south traffic using U. S. Highway 99E. Now the four-mile-long North Sacramento freeway permits through traffic to completely circumvent the business district. It has rerouted approximately 20,000 vehicles a day, which formerly traveled from one end of the main business street to the other.

Although the fact was not realized by the local merchants, that volume of through traffic, added to approximately 21,000 vehicles that still use Del Paso Boulevard, was creating a condition that soon would have represented economic strangulation.

• More wanted—It is very interesting to note that the North Sacramento Chamber of Commerce is at present conducting a determined drive to secure a second arterial on the opposite side of the business district from the new freeway in the hope that it will carry a heavy volume of local commuter traffic around the business district, and further reduce the volume of non-patronizing traffic which, in their opinion, still remains a problem.

A second study was made at Auburn (Pop. 4,577) where all through traffic on U.S. Highway 40 formerly traveled over the main business street. This section of U. S. 40 in the summer carries a very heavy volume of traffic from the Sacramento Valley and points south and west to the recreational area of the High Sierras, including the Lake Tahoe section. The two-mile-long section of freeway which has been completed supersedes about the same length of city streets, which formerly carried the through traffic.

Many of the Auburn stores were found heavily stocked with merchandise of the type attractive to tourists and vacationists. In this city was also found an unusually large number of service stations, cafes and bars, which caused local people to believe that through traffic was absolutely necessary for economic existence. For this reason an analysis of the volume of retail business in Auburn stores fol-

TABLE I—CHANGES IN BUSINESS VOLUME AND IN LAND VALUES OF PROPERTY IN AREAS THROUGH WHICH FREEWAYS HAVE BEEN BUILT

(Compared to a suitable base)

1. Retail Business Volume

Type of Business	Percent increase or decrease North Sacramento	 County
All retail business	+48½	+27
Service stations and auto supplies	+38½	+15
Cafes and bars	+13	— 1½
All others	+54½	+33
	Auburn	State
All retail business	+17	+14
Service stations and auto supplies	+17	— 4
Cafes and bars	— 6	—11
All others	+20	+20
	Fresno	State
All retail business	+42.2	+ 5.1

2. Average Change in Real Estate Values

Place	Increase, percent
North Sacramento	59.5
Auburn	34.0
Fresno	200.0

3. Average Change in Land Values along Business Property Sections (Based on all vacant property sales)

Place	Value Before	Value After
North Sacramento	$160 per front foot	$290 per front foot
Auburn	$153 " " "	$208 " " "
Fresno	$1,000 per acre	$3,000 per acre

4. Highest Unit Price Paid for Vacant Property

Place	Value Before	Value After
North Sacramento	$200 per front foot	$320 per front foot
Auburn	$328 " " "	$368 " " "
Fresno	$2,300 per acre	$7,000 per acre

lowing the opening of the new freeway will be of particular significance to merchants in smaller cities who face the possibility of construction of a freeway to permit through traffic to circumvent the local business section.

The third study covers the section of U. S. Highway 99 between the southerly city limits of Fresno (Pop. 96,626) and the town of Fowler (Pop. 1,859), a distance of 9½ miles.

The type of improvement from the southerly end of the business district of Fresno to the south city limits is a freeway, and from this point southerly to Fowler consists of the conversion of the existing conventional state highway into an expressway, with tight limitation of access from private property to the through lanes of traffic. Generally speaking, all roadside business establishments that formerly had direct access to the through lanes of traffic now front upon and have access only to frontage roads.

In all cases where the property had access to both the state highway and an intersecting county road, all access rights to the expressway have been acquired, and in those few cases where an agricultural enterprise had no other means of access, holdings varying from 1,320 ft to as much as 3,000 ft of frontage have been permitted, generally, one 30-ft opening for access to the through lanes of traffic, and in one or two exceptional cases, two such openings.

• Graphic picture—A summary of the statistics uncovered by the three studies is given in Tables I and II.

The graph in the opening part of this article presents a clear picture of the effect on property values of the freeway through part of Fresno and its continuation as an express way to Fowler. That graph is a comparison of the before and after value of each of the properties along this section that had been sold within a reasonably short period before the expressway was built and that changed hands again after construction. Each of these properties was vacant at the time of both sales so that this chart represents the true picture of the increase in land values following the expressway.

Prior to construction of the expressway, properties along this section were used mainly for agriculture, with some low-grade to medium roadside commercial establishments. Immediately upon completion of the expressway a trend toward light and heavy industrial and better class highway commercial uses began to take place with the resulting increase in land values as indicated by the graph. In the two-year period after the conversion of the old highway into an expressway, more than a million dollars worth of improvements were constructed on these vacant properties. It is obvious that the advantages of frontage road service adjacent to an expressway were immediately apparent to business investors.

A comparison of the rates of increase in the number of business establishments along the by-passed section of North Sacramento with corresponding increases in Sacramento County is shown in Table II. That table clearly illustrates the confidence of investors in the benefits to the city's main business street resulting from removal of the through traffic. Owners of business properties in this area no longer believe that more traffic by the door means more business.

TABLE II—INCREASE IN NUMBER OF BUSINESS ESTABLISHMENTS ALONG BY-PASSED BUSINESS STREET IN NORTH SACRAMENTO

Type of Business	Percent Increase or decrease North Sacramento	 County
All retail business	+16	+ 6
Service stations and auto supplies	+28	— 8
Cafes and bars	+16	— 5
All others	+12½	+10

TABLE III—CHANGES IN TRAFFIC VOLUME ON THE MAIN BUSINESS STREET RESULTING FROM CONSTRUCTION OF PARALLEL FREEWAYS

	Volume of traffic per day after freeway opened	Reduction resulting from freeway
North Sacramento (Pop. 6,016)	21,750	44%
Auburn (pop. 4,577)	6,500	10%

ALL BUSINESS ESTABLISHMENTS at Buellton on U. S. Highway 101 now are located on frontage roads, yet they all cater primarily to motorists using the highway. Business, generally, has been improved by the change in location.

Table III gives significant figures relating to changes in traffic volume in North Sacramento and Auburn.

• Conclusions from economic studies—California's economic studies at these three locations have already upset many of the heretofore unproven concepts of the relation of highway traffic to business and property values. The consistent pattern developed by the studies completed up to the present time and the pattern that is developing from additional studies that are nearing completion indicate that the following conclusions are amply justified.

1. The gross volume of business being handled by the retail merchants along the main business street of a city or town that has had through traffic removed to a freeway shows that the merchants are actually enjoying a greater percentage of increase than comparable types of business establishments located upon streets and highways where no changes in the traffic pattern have taken place. The same conclusion applies to business establishments located along rural highways that have been moved back to positions on frontage roads.

2. Properties adjacent to or abutting expressways and freeways, which have limited access or no direct access to the through lanes of traffic, increase in value at a rate in excess of that for comparable properties abutting conventional streets or highways which are in the same general vicinity and where there have been no changes in conditions of access between the through lanes of traffic and the property.

3. A freeway installation diverting through traffic from a heavily built up business street results in an increase of business potential and actual volume of business despite the resulting decrease in traffic volume.

4. An expressway or a freeway development with its accompanying controlled access eliminates strip development by marginal enterprises, and the usual accompanying cut-price or "cut throat" type of competition, and stimulates the growth of substantial, permanent business establishments on a sound basis.

• Basic reasons for higher values—Several reasons for the beneficial effects of freeways on business and property values, despite the resulting traffic drop, became apparent in these studies. Retail business along affected sections is benefitted by the removal of the non-buying through traffic, which encourages the prospective motorist-customer to come to the central business district and shop because of the increased safety and convenience. This reduction in non-buying traffic also facilitates pedestrian movement making the shopping area more desirable to all classes of clientele.

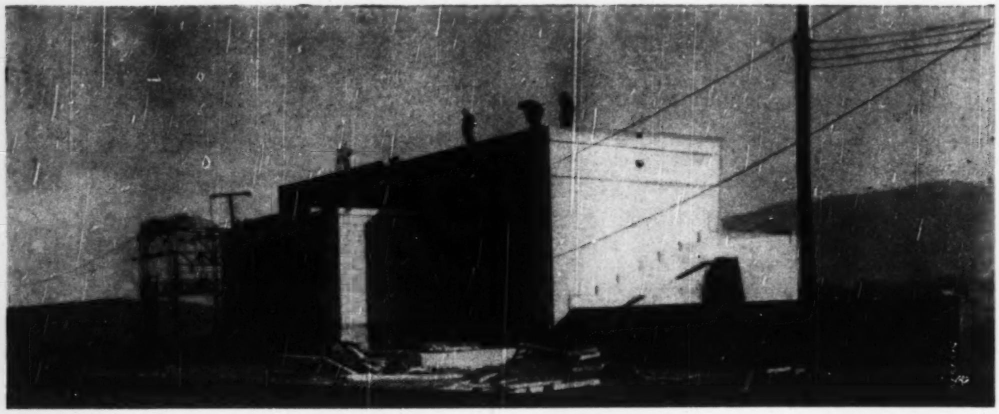
Land value increases always follow improved business conditions in any locality. The land value increase disclosed in these studies was the result of a change to a higher and more profitable use or a more profitable operation of existing facilities. The permanent character of freeways as compared to the uncertainty of locations along conventional highways also tends to increase property values by justifying longer estimated economic life, and a reduction of the capitalization rate demands on the affected properties.

The growth of substantial business establishments instead of marginal enterprises is largely explained by the fact that the principal sustaining feature of low-grade ribbon enterprises is eliminated. This feature is the immediate location factor, the opportunity for the low-grade type of roadside merchant to thrust himself upon the passing motorist.

The fact that this type of low-grade roadside enterprise has little justification for existence is apparent in its failure to appear along the frontage roads adjacent to expressways.

• Freeways in metropolitan areas—It is not anticipated that economic studies such as the three just described will be made in the larger cities because the general public in these large cities has long since come to realize that the volume of through traffic added to the heavy local traffic has produced a state of economic strangulation and has caused a decentralization movement that threatens the life of the central business district unless the traffic problem can be solved. They fully realize that the freeway is half the answer, with the remaining half being solution of the parking problem.

In the metropolitan areas, the Arroyo Seco Parkway and the completed section of the Santa Ana Freeway in Los Angeles, the Balboa Freeway in San Diego, and the completed section of the East Shore Freeway in Oakland show clear signs of stimulation and stabilization of real estate values. The only real problem is to keep the citizens of these metropolitan communities content until the major portion of the freeway system to handle traffic into and through these metropolitan areas can be completed and placed in operation.



SUSQUEHANNA BASIN'S BIGGEST—This 450,000-gpm pumping station is part of a $17,000,000 flood control project now near 65% completed at the city of Williamsport, Pa. Included are 64,000 ft of levees and 7,600 ft of concrete flood walls.

Basin's biggest plant to pump against floods

E. H. Luetje
Resident Engineer
Williamsport Flood Protection Project

Hepburn Street Pumping Station is the largest of four built to push storm water and sanitary sewage through newly constructed Susquehanna River levees at Williamsport, Pa., and into the swollen stream in times of flood. It is the biggest built to date by the Baltimore District, Corps of Engineers, in its program to control floods in the Susquehanna Basin.

The $17,000,000 project in and about Williamsport—levees, concrete flood walls, drainage structures and pumping stations—is about 65% completed. Protection works will line both banks of the river and eventually extend up Lycoming Creek, tributary joining the river in this city.

These barriers will keep the river out of Williamsport. But provision had to be made to get Williamsport's drainage out to the river—when its stage rises above sewer outfall levels.

Sewers and drains have gates at their outlet ends to prevent backing up of flow during floods. And the pumping station at Hepburn Street is designed to pump all storm water brought to it by an 11-ft dia sewer, computed to carry 1,000 cfs. Also, the plant will pass an additional 1,000-cfs gravity flow which may flow overland to reach it in severe storms with runoff exceeding the capacity of the 11-ft sewer.

The substructure of the station is divided so that it is in effect two independent pumping plants—each having two 112,500-gpm pumps. The four pumps are arranged so any one pump or any combination of pumps can be used—to handle flows up to 450,000 gpm. Pumps are vertical propellor type, having 66-in. dia discharge pipes. Each is powered by a 700-hp motor.

Substructures of the station, discharge chamber and outlet structure are constructed of reinforced concrete. The sump floor area, including the intake chamber, is 3,900 sq ft. The elevation of the sump floor is 492.0; low water elevation of the river at this point is 495.0; the crown of the levee is at El 534.5, and the maximum high water elevation of record was El 530.4 in 1936.

An earth and sheet pile cofferdam was used in excavation; 150 wellpoints and two 8-in. pumps were needed.

The superstructure walls and roof are supported by a structural steel frame; brick-faced walls are backed with hollow tile units. No windows are provided as previous experience proves they are tempting targets to vandals. Instead, a pleasing architectural treatment is provided by the use of recessed panels in the brickwork and cast stone trim and coping.

To assist in assembling and dismantling the pumps and motors, a 15-ton traveling, manually-controlled crane is installed. A 10x14-ft accordian type aluminum door will admit trucks delivering equipment to be handled by the crane.

Power for the station is furnished from the local power company network. The feeders consist of 12,000-volt lines which come into the electrical substation at the pumping plant. This substation is equipped with two 1,500-volt, 3 phase transformers.

Cost of the station, including all mechanical and electrical equipment, the electrical substation, excavation and backfill, access roads and parking terrace, was about $800,000.

Design and supervision of construction was by the Baltimore District under Lt. Col. A. C. Welling, District Engineer. The contractor was Lycoming Construction Co., Inc., of Williamsport, Pa.

FORMERLY, the 11-ft sewer outlet looked like this at low water, was submerged at high water.

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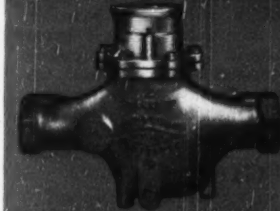

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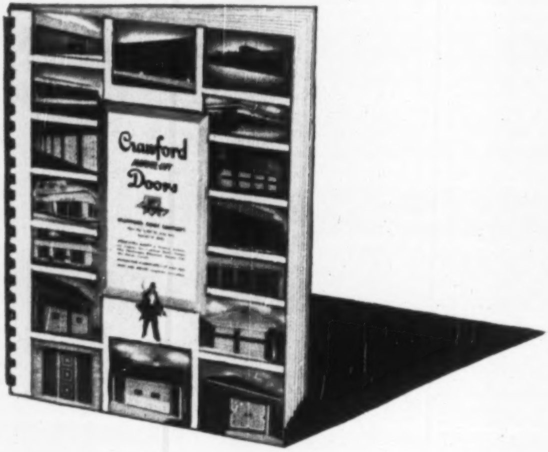

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Reports and Pamphlets

Principal Factors to be considered by a community in making long-range plans for schools are presented in a 43-page booklet, "Your Schools," by William W. Caudill, research architect and professor of design, A&M College of Texas. A joint project of the college and the Texas Engineering Experiment Station, College Station, Texas, the booklet discusses the main problems in planning schools: What and how will you be teaching during the next five, ten, fifteen, twenty years? What sort of school plant must you have to meet these needs? And how will you pay for the facilities?

Criticism of Government Policies and suggestions for reforming them are contained in a 16-page monograph, "Rental Housing Under FHA-608." It was published by the New York chapter of the American Institute of Architects in the hope of reducing deficiencies in similar programs in the future. Excessive standardization, glorification of the minimum standard, inadequate ceiling heights, lack of privacy in apartments and insufficient fire resistance in construction are scored. The pamphlet can be purchased for $1 from the chapter, 115 E. 40th St, New York 16, N. Y.

Findings of a Survey on traffic problems associated with drive-in theaters are presented in a booklet, "Policy on Drive-in Theaters." The survey was made by the American Association of State Highway Officials with the cooperation of the Nebraska Department of Roads and Irrigation. Among the recommendations made are: Greater use should be made of zoning. Solutions to traffic problems can be worked out by highway officials and theater owners through mutual compromise. Theaters should be located on secondary roads, not major highways. Screens should not face an important road. The booklet can be obtained for $1.50 from C. W. Prisk, Secretary, AASHO Operating Committee on Traffic, Bureau of Public Roads, Washington, D. C.

Controlled Access Expressways in Urban Areas—A Symposium—Bulletin No. 25. Highway Research Board, 2101 Constitution Ave., Washington, D. C. Price 60c.

Use of Air-Entrained Concrete in Pavements and Bridges—Current Road Problems—No. 13-R. Revised edition. Highway Research Board, 2101 Constitution Ave., Washington, D. C. Price 45c.

Your Schools—An Approach to Long-Range Planning of School Buildings—Texas Engineering Experiment Station. Texas A. & M. College, College Station, Tex.

The Predetermination of Water Requirement and Optimum Grading of Concrete Under Various Conditions—Building Research Studies No. 3. Teknisk Forlag, 29 V. Farimagsgade, Copenhagen V, Denmark. Price 15 Kr.

Solutions to the Problem of Merchandise Pickup and Delivery in Business Districts — Transportation and Communication Department, Chamber of Commerce of the United States, Washington 6, D. C. Price 10c.

Toward Wiser Use of Wood—A mid-century tribute to the men and women who conceived and founded the U. S. Forest Products Laboratory and guided it through its first 40 years. Published by the Forest Products Laboratory Employee Assn., Madison, Wis.

The A-B-C's of Aluminum—Technical Editorial Service, Reynolds Metals Co., Louisville 1, Ky.

Symposium on Accelerated Durability Testing of Bituminous Materials—Special Technical Publication No. 94. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $2.00.

A.S.T.M. Standards on Mineral Aggregates, Concrete and Nonbituminous Highway Materials—American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $2.25.

Recommended Program of Public Improvements—1950-1955 — City Planning Commission, City of Philadelphia.

Writing Specifications—Reprint of a talk by R. A. Harris. Bulletin No. 2. School of Engineering, University of Mississippi, University, Miss.

Study on Water Consumption in Westchester County For the Years 1946 to 1949—Water Resources Committee, Larchmont, N. Y.

Measuring Water in Irrigation Channels with Parshall Flumes and Small Weirs—Soil Conservation Service Circular No. 843. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price 20c.

Highway Loads and Their Effects on Highway Structures Based on Traffic Data of 1942—Bulletin No. 116. Texas Engineering Experiment Station, College Station, Texas, in cooperation with the Bureau of Public Roads.

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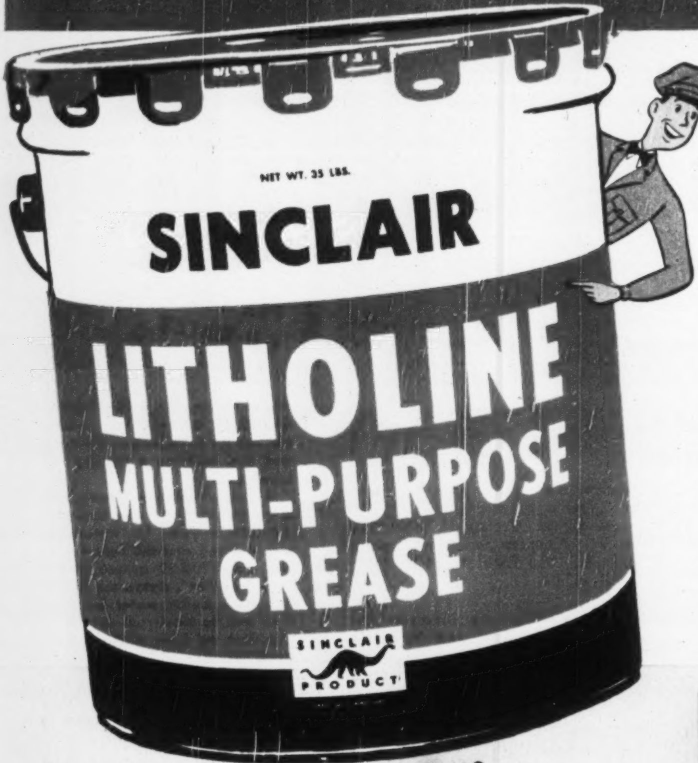
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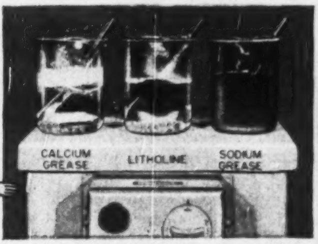
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Samples of each grease are heated in beakers of water. Near boiling, the sodium grease disintegrates into soapy water and oil. Shortly after boiling the calcium grease shows foamy emulsion as grease absorbs excess water. Litholine remains unaffected, proves its superiority in combating wet conditions.

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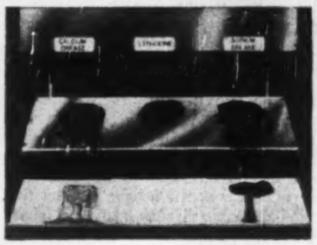
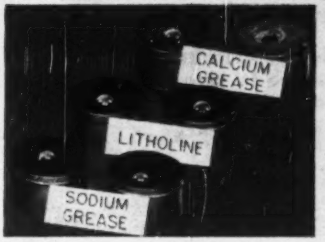


HEAT-RESISTANCE TEST!

The samples are heated on a plate. At 190°F., the calcium grease disintegrates. At 340-350°F., the sodium soap structure collapses and releases the oil. Bearing failures would follow. At 380°F., Litholine shows no effects, proves superior for high temperature lubrication jobs.



MECHANICAL STABILITY TEST!

Worked (kneaded) samples are placed beside samples of unworked grease. Steel balls are dropped. Distance ball sinks in worked samples shows increase in softness—loss of stability. The calcium grease showed greatest increase in penetration, the sodium grease next. Litholine showed no difference whatever . . . proving its superior mechanical stability in service.

CALCIUM GREASE
LITHOLINE
SODIUM GREASE

LOW TEMPERATURE PUMPABILITY TEST!

Lever-type grease guns are filled with chassis greases and cooled. At 20°F., it is impossible to pump the sodium grease. At 0°F., it is impossible to pump the calcium grease. But Litholine still pumps in good volume! Yet Litholine is a heavier (harder) grease. Thus, Litholine has the body for summer service yet is pumpable in severely low temperatures.

COMPANY

For lubrication counsel, or more information on Litholine, see your nearest Supplier of Sinclair Products, or write to Sinclair Refining Company, 630 Fifth Avenue, New York 20, New York.

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READER COMMENT

Collective Bargaining

Sir: Your editorial in the Aug 17 issue on "Collective Bargaining by Engineers" indicates that your opinion on this subject is considerably different from that of the engineers in this locality.

Last spring this proposed statement of principle was brought to the attention of the 27 chapters and affiliated societies of the Ohio Society of Professional Engineers for the opinions of the members. A special effort was made to secure the opinions of the young men. In this area all interested engineers approved the proposed statement, some thought that the statement should be shorter and plainer. None was found that shared your views here, or at the state meeting where each chapter representative, not content with merely voting, stood up and explained how the subject was brought to the attention of the members and how they felt about it. You have better facilities than I do to learn, and report, what study was given to the statement in other states before being adopted by the Board of Directors of the National Society. Your sources should be examined.

Your insinuation that some of the principal officers of NSPE have an ulterior motive as employers of engineers in adopting this statement of principle is surprising, as well as slanderous. You owe the profession an explanation of your position.

E. L. Brown
President, Miami Chapter,
Ohio Society of Professional Engineers,
Middletown, Ohio.

Editors' note—Quite general agreement by engineers with the stand taken by the Board of Directors of NSPE concerning collective bargaining for engineers is to be expected, because few of them have studied the subject objectively. Like Calvin Coolidge's summary of the preacher's sermon on sin, they are against it.

Insinuation of ulterior motives on the part of the officers of NSPE who are employers of engineers was farthest from our thoughts when we pointed to the possibility of the National Labor Relations Board looking on the NSPE statement as an attempt to interfere with the right of engineers to bargain collectively. Our sole purpose was to draw attention to the fact that organizations made up of employers and employees must take such an eventuality into consideration if they are to keep out of trouble.

At the Crompton & Knowles Looms Works
WORCESTER, MASS.

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with Kodagraph Autopositive Paper

FILING

A low-cost, photographic intermediate paper that produced positive copies directly was "big news" for Crompton & Knowles, world's largest manufacturer of specialty looms. To begin with, it meant that they could reorganize their filing system much faster and much more economically than had been estimated. *Here was the problem:* they had some 200,000 detail drawings—4 to 8 on each sheet of paper. Many of these were not in sequence, which slowed reference; and, when blueprints of only one part were needed, it meant a waste of paper . . . besides taking the attached drawings out of the files. *Solution:* the design sheets were reproduced on Kodagraph Autopositive Paper; then the prints were cut and filed correctly in the "master" file.

* * *

DRAFTING

Crompton & Knowles has adopted the rule: "*A Kodagraph Autopositive intermediate of every drawing.*" And this is paying off today in lower re-drafting costs. *Before,* the original detail drawings (described above) and scale drawings were used as the blueprint "masters" . . . were exposed to machine wear-and-tear, constant handling. When they no longer produced legible blueprints, they had to be redrawn. *Now* the valuable originals are kept safe in the files—available for reference and revisions only. The "Autopositives" do the "heavy work" . . . whenever needed.

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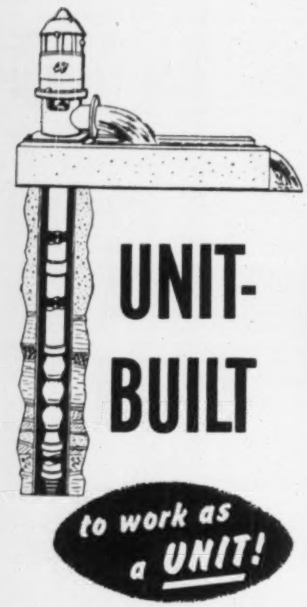

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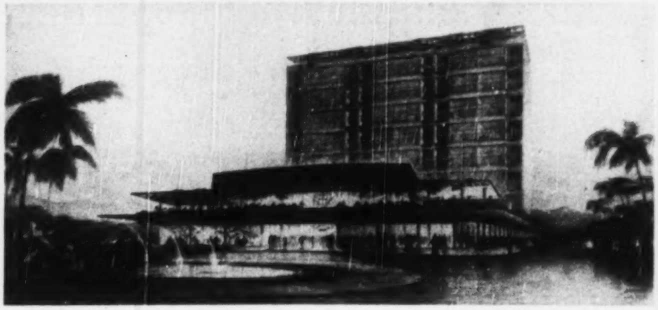
DEVELOPMENTS ABROAD



COMPLETE LIVING IN CARACAS—Centro Altamira, a project containing a shopping center, a roof top restaurant, a theater, an apartment house and a roof garden, is being planned for Luis Roche to be located on the Plaza Altamira, Caracas, Venezuela. It is being planned by Roger Halle, New York architect, with Guinaud & Benacerrof, architects, of Caracas.

Foreign Briefs

Port planning—The National Harbor Board of India has recommended pooling technicians and equipment for the development of ports, of which there are 200 in that country.

Low-rent housing—One of the largest low-rent housing developments in Puerto Rico is to be built by the San Juan municipal housing authority at Borda Farm, a suburb. Contract for the first 882 units has been awarded to Javies Zequeira, at $3,896,000.

African dam—The colony of the Gold Coast may receive technical and financial help from the British government to build a proposed dam across the River Volta at Accra. It would be to irrigate the coastal plains, generate electric power and develop an aluminum industry.

(*Continued on page 59*)

Tile on Mexican building replaced by stucco

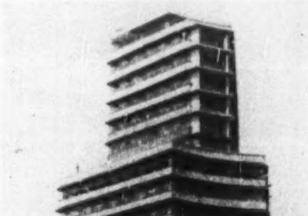
Some months ago (ENR May 4, page 53) there appeared a picture of a building under construction in Mexico City which raised so much controversy that that work was stopped.

The architect of the building, which was being built for the government irrigation department, had planned to use brightly colored tiles carrying a native Indian design to face the building facades.

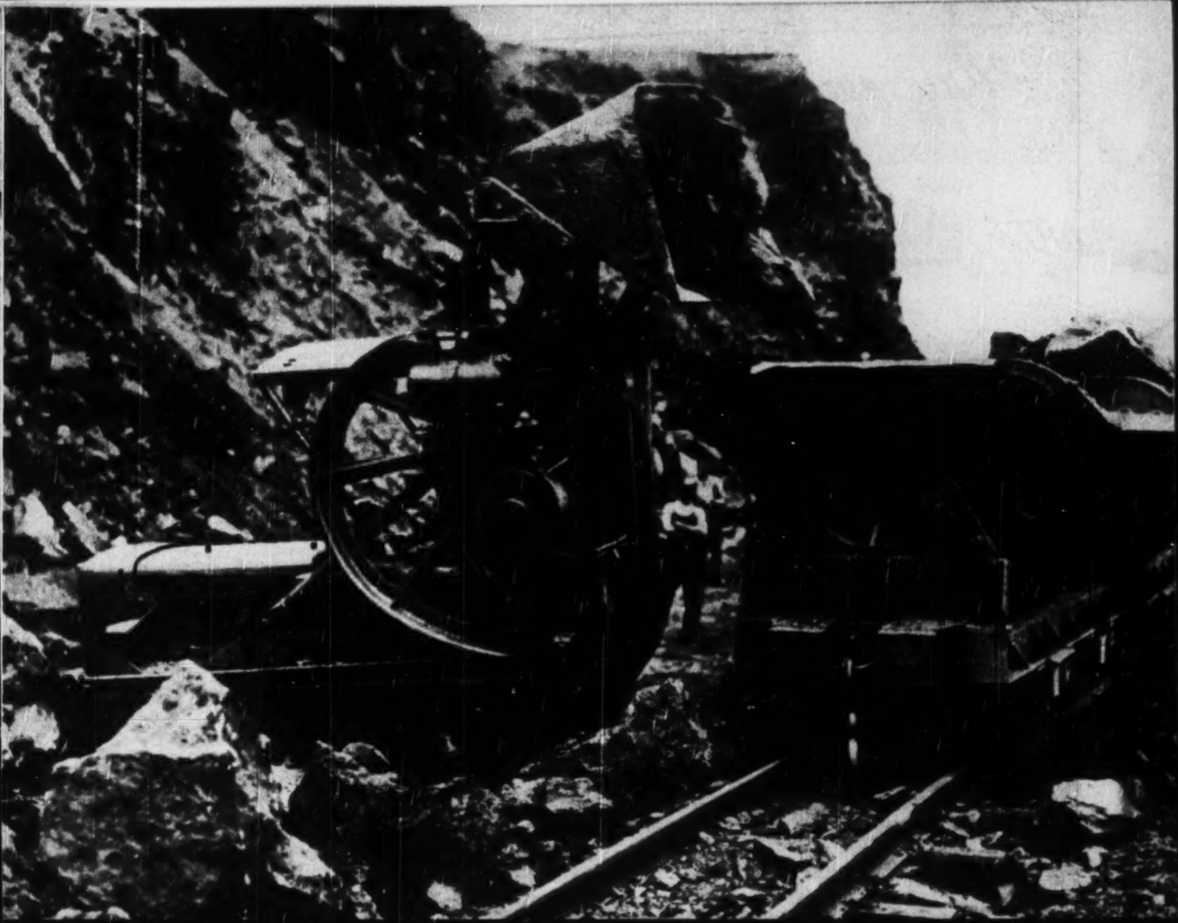
When they were about 90 percent installed, the objections to the bright brown, white and orange tiles became so great that the government ordered further work halted until a fine arts committee could study the project. The main complaint was that because the building occupied a prominent spot on the city's most famous avenue, Paseo de la Reforma, the structure would constitute an eyesore.

The designer argued that it was time Mexico developed its own architectural styles without depending upon the Anglo-Saxon culture for ideas.

After several weeks of study, the committee ruled against the architect and the tiles were removed. The building is now being faced with a gray concrete stucco as shown.

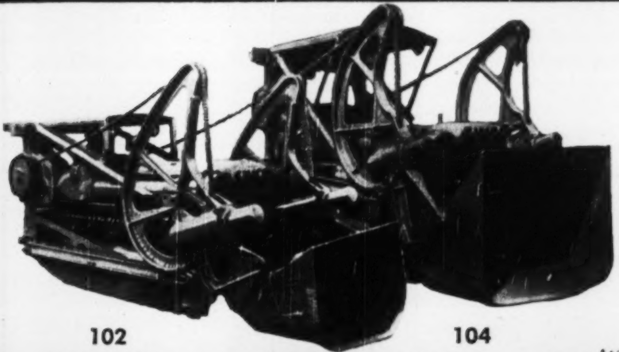


Resurfaced Irrigation building.



Rock Loading

10—15 Second Cycle



The 104 Eimco RockerShovel above is loading limestone into 8 ton mine cars. The capacity of the 104 is equal to their 2 yard power shovel and the 104 is used for such auxiliary jobs as moving track, bulldozing, etc.

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Peter Salvucci, Waltham, Mass., has a $957,946 contract for extensive highway construction work in the Towns of Acton, Boxboro, and Littleton, Mass. The projects are well ahead of schedule.

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To join Scylla and Charybdis—Sicily soon will be linked up electrically with the Italian peninsula over the Straits of Messina. The historic straits will be crossed by a 4-cable span of 11,906 ft. The cables, of extra high resistance steel, will be supported by pyramidal pillions, that on the Sicilian side being almost on the shore and of a height of 675 ft. The one on the Italian side will be on top of a rock 525 ft high and therefore the steel structure there will be smaller accordingly. The minimum height of the cables above the water will be 230 ft to permit passage of the largest ships. Electrification has been planned for the whole Sicilian railroad network, and more electric power is also required for industrialization and to raise the low Sicilian standard of living.

For an international airport—Salvador V. Caro, general manager of the Puerto Rico Transportation Authority, has retained Knappen Tippetts Abbett Engineering Co., New York for the design of terminal buildings, facilities and services for the new Puerto Rico International Airport. The work will include a master plan and detailed designs, drawings and specifications for buildings and services.

Access highways—Appropriation of $1,450,000 has been asked of the Brazilian congress to complete the system of access highways to Paulo Alfonso Falls where the Sao Francisco Hydroelectric Co. is building a large generating plant.

6-year plan for Ceylon—Consideration is being given by Ceylon to the idea of inviting foreign capital and technical skill to take part in a 6-year economic development program for the island.

Road show postponed—The road show which was to have been held in Rio de Janeiro this fall has been postponed till Jan. 6, 1951, it has been announced by the American Road Builders' Association.

Turkish hydraulic development—Frederick R. Harris, Inc., of New York has signed a contract with the Turkish Ministry of Public Works for consulting engineering services in making a survey of proposed hydraulic development in Turkey, including ground and sub-surface waters for multiple-purpose use, impounding reservoirs, dams, diversion canals and ditches for irrigation, wells, distribution and treatment works for water supply, flood control and navigation works, and hydraulic electric plants. Walter D. Binger and D. P. Roberts have started the survey.

35 m.p.h.
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1
5

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MUNICIPAL AFFAIRS

HEART OF A DYNAMIC CITY—In the foreground of this view of Atlanta, Ga., is the Georgia State Capitol and back of it are the skyscraping structures of the business district of one of the most prosperous cities of the South and of the United States.

Atlanta, business center of the Southeast

With a population well over a third of a million, retail sales of over $700,000,000 annually, and bank clearings of almost $12,000,000,000 a year, Atlanta is one of the outstanding cities of America. Its growth and development in the last 86 years have been phenomenal.

Some of the claims made for Atlanta are: It is the regional headquarters for 3,300 national concerns; the industrial headquarters of the South; the nation's third communication center; and the first American city in office space per capita.

Like all growing cities, Atlanta's civic problems have largely to do with traffic, housing and municipal services for a growing population.

A newly-established City Traffic Commission and a north-south expressway are expected to take care of the first-mentioned problem. Street widening is something considered for the future. In the uptown area there is a plan to set new building lines, providing that new structures be set back far enough to permit eventual widening of streets.

Since 1945 the Atlanta waterworks department has spent more than $4,000,000 on capital improvements, and now has an $8,000,000 to $10,000,000 program to be put into effect.

Water plant improvements begun at Marion, Ind.

An improvement program for the city water department of Marion, Ind., has started in three separate contracts, as follows:

Modifications to and electrification of the existing high-lift pumping station which consisted of hand fired boilers and a combination of electric and steam driven pumping equipment, the new pumps to be all centrifugal electric driven units; the building complete of a modern softening and filtration plant to reduce the hardness of the well water supply from 35 grains to 5 grains by the lime soda process. The new plant is to have a nominal capacity of 7.0 mgd. with provision for future additions that would increase this capacity to 10.5 mgd. Included also in this contract is a new 20-in rawwater feeder line which will connect an outlying well field to the main plant site, and the construction of a new roof on the existing ground storage water reservoir. The erection of two elevated water storage tanks of 500,000 gal. capacity each. These tanks will be located at strategic points to provide maximum water pressure throughout the entire distribution system.

The contract for the steel overhead water storage tanks was let to the Pittsburgh-Des Moines Steel Co., and the other two contracts went to the C. & C. Construction Co., Fort Wayne, Ind.

The firm of consulting engineers who designed and are supervising the work are Consoer, Townsend & Associates, Chicago.

Plan calls for issuance of mortgage revenue bonds for the above improvements, then financing other expansion projects on a pay-as-you-go basis. The increase would bring the average domestic water cost up from 2 cents to 2⅔ cents a day, said George Van Dorp, water commissioner.

Ohio cities consider water rate boost

The city utilities department of Cleveland, Ohio, has made a report to Mayor Thomas A. Burke which says that an increase of 12 percent in the city's income for water users will be necessary if serious curtailment of the water expansion program is to be avoided.

Some weeks ago the city asked four large suburbs to agree to a 33 percent water rate boost. And at Toledo the city council is considering a boost in both domestic and industrial water rates, to bring in approximately $2,500,000 a year to finance improvements to the city's water system.

Scheduled for priority construction if council approves the rate increase are a new pumping station; a 72-inch line under the Maumee River linking the new station with Chase St.; a 60-inch line from Chase St. to Cherry St., and water softening facilities at the Collins Park pumping station, estimated to cost $3,500,000.

Engineers are engaged for Nashville boulevard

A contract has been drafted by the Nashville, Tenn., Housing Authority employing Clark, Rapuano & Holleran, of New York, to complete plans for the development and engineering designs for the proposed new boulevard from the Public Square around Capitol Hill and connecting with Eighth Avenue North. It is expected that actual planning work will be under way within the next few weeks. The Nashville Housing Authority plans to begin acquisition of property for the city's Capitol Hill redevelopment project early in 1951.

State and federal engineers have agreed on a viaduct type approach to the new Victory Memorial Bridge over the Cumberland River, this viaduct to extend from North Third and Main Streets to the main bridge structure. On the west the Victory Bridge will connect with the boulevard project at the Public Square. Preliminary estimates place the boulevard project's cost at $800,000 with the bridge and viaduct approach cost set at $5,000,000.

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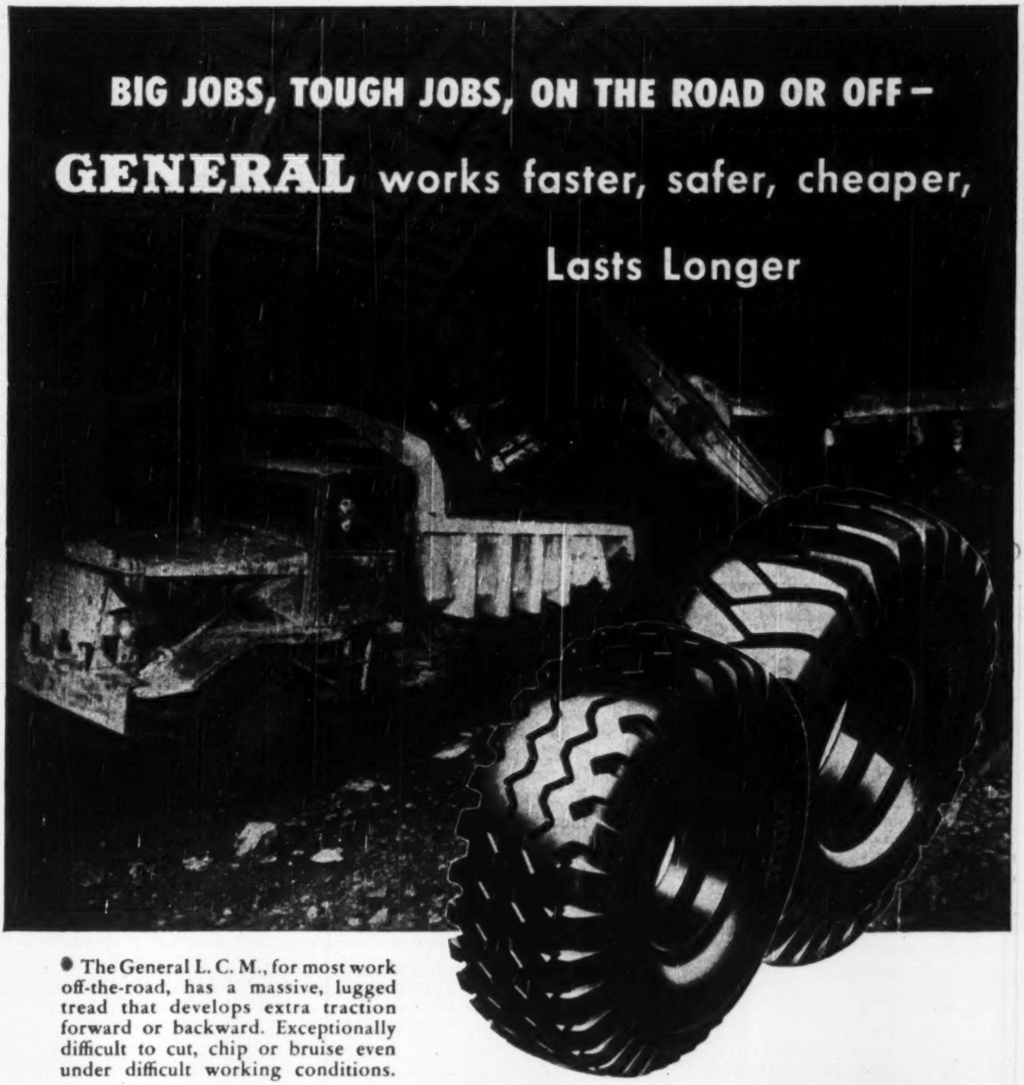

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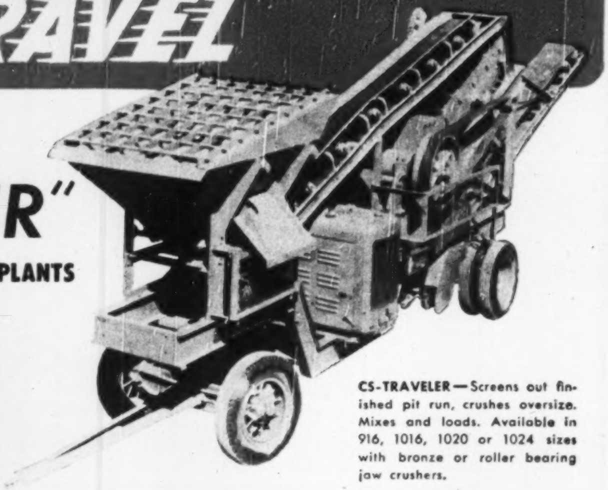

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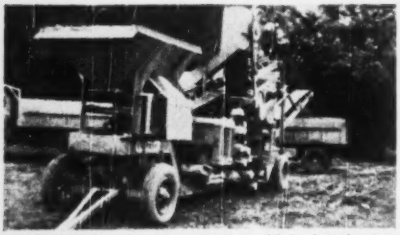

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MEN AND JOBS

Homer W. Jorgensen, design engineer of the Los Angeles County Sanitation Districts, has resigned to enter private practice in sewage and industrial waste disposal. He will locate in the San Joaquin valley, where he once served as a county sanitary engineer and sanitary engineer for the California Health Department. During World War II he was with the Los Angeles District Office of the U. S. Engineer Department in designing sewage disposal facilities for Army camps.

Joseph A. Fisher, a civil engineer, has been elected executive vice-president and a dirctor of the Reading Co. He was graduated from Lehigh University in 1917 with civil engineering and bachelor of arts degrees and has been with Reading since 1921.

Erwin C. Brandon, Jr., city manager at Asheboro, N. C., has been appointed city manager of Burlington, N. C., succeeding **W. H. Carper,** who resigned recently to become city manager of Raleigh, N. C. Brandon obtained his engineering degree from Virginia Polytechnic Institute, and served as city manager at Kings Mountain, N. C., before taking the Asheboro post. During World War II he was with the Army Engineers in both the European and Pacific theaters.

Lewis S. Finch, chief engineer of the Indianapolis Water Co., was named to vice-president in charge of operations and engineering. He will retain his post as chief engineer, a position he has held since 1944. He joined the firm in 1942 as assistant engineer prior to serving as chief engineer with the Indiana State Board of Health from 1925 to 1933 and specializing in water works and sewage problems in private practice. He is a 1921 graduate of Purdue University.

Lt. Col. Otto J. Rohde, assistant Little Rock, Ark., district Army engineer, has been assigned to duty with the 37th Engineer Combat Group, 3rd Army. He served as acting district engineer at Little Rock, pending the recent arrival of **Col. Hans W. Holmer.**

Murray M. Swanston of Regina, Sask., has been appointed senior district engineer of the Department of Highways Province of Saskatchewan.

James Braxton is supervising planner for the Chicago Housing Authority, a newly created post. He will have charge of laying out specific projects. He has been a site planner with Skidmore, Owings and Merrill in New York and then with the International Basic Economic Housing Corp., in New York. He received a degree of master of city planning in 1947 from the Harvard graduate school of design, where he taught engineering and architecture.

The Pennsylvania Department of Health has appointed **John C. Maguire,** Barnesboro, mine drainage engineer; **John J. Fetch, Jr.,** Wilkes-Barre and **Charles H. Kuder,** Meadville, junior sanitary engineers; and **Richard J. Birkofer,** Chester, senior assistant sanitary engineer.

First district engineer of the recently created Fort Worth district office of the Corps of Engineers is Col. Delbert B. Freeman. He will supervise a $175,000,000 civil construction program, including Benbrook, Grapevine, Lavon, and Garza-Little Elm dams, the $42,000,000 Whitney Dam, the $22,500,000 Belton Dam both in the Brazos River watershed, the $18,500,000 San Angelo Dam near San Angelo, Texas, and Dam "B" near Jasper, in East Texas.

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Sauerman Scraper with rapid shifting device at tail end, makes deep cut into hill, moves earth 400 ft. and dumps into hopper at rate of 2,000 cu. yd. a day.

Sauerman Slackline Cableway digs deep, wide pit and moves 30 to 40 loads of wet material hourly to top of screening plant.

Dig, Haul, Dump

at lowest cost!

MANY problems in earth moving and stockpiling can be simplified and a great deal of money saved by using either a Sauerman Power Scraper or Slackline Cableway which digs, hauls and places materials in one operation.

First cost of a Sauerman machine is reasonable, maintenance expense is small, and the simplicity of operation permits easy one-man control of even the largest installation.

This equipment is flexible and is readily adapted to meet new conditions. Sizes range from small portable units designed for cheap handling of a small hourly yardage up to powerful machines that will move as much as 600 cu. yd. per hour of tough materials.

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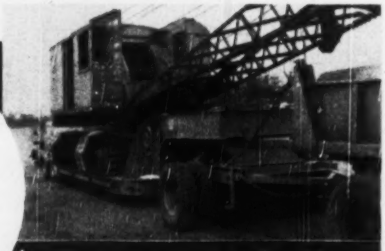

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Lt. Col. Wm. J. Penley, formerly executive officer of the Ft. Worth District, has been transferred as student officer of Command and General Staff College which is located at Ft. Leavenworth, Kan.

Clarence Hoedeman, Ionia, Mich., has been appointed engineer of road design, bridge and drainage structures for the Eaton County Road Commission. He has been with Kent County and Ionia County Road commissions in an engineering capacity during the last 12 years.

Maj. Frank P. Bane of Charles Town, W. Va., has been appointed executive officer of the Buffalo, N. Y., District, U.S. Engineers. He succeeds **Maj. Edward M. Wright** now at Ft. Belvoir, Va. Major Bane was graduated in 1942 from West Virginia University. He served with the Combat Engineers in World War II, and after the war was in the Engineer's logistics division in Washington.

Edward J. Cleary, executive director of the Ohio River Valley Water Sanitation Commission, and former executive editor of THE ENGINEERING NEWS-RECORD, has been unanimously elected U. S. director of the board of directors for the Inter-American Association of Sanitary Engineering for the term 1950-53. Mr. Cleary has traveled extensively in South America.

Harold W. Casey, vice-president of the William L. Crow Construction Co., has retired. He joined the company shortly after his graduation from Rensselaer Polytechnic Institute in 1917 and has completed 32 years of consecutive service. During World War II he was acting president. He was in charge of construction of the Seamen's Bank for Savings on Wall Street, New York, several New York Telephone Co. buildings, and the Westchester County, N. Y., office building.

Francis L. Brown, who recently resigned as deputy superintendent, New York State Department of Public Works, has opened an office at 46 Cedar St., New York City, as a consultant specializing in highways, airports, water supply systems, sewage disposal and industrial buildings.

Lt. Col. Herrol J. Skidmore, West Point, 1922, has become director of the Waterways Experiment Station, Vicksburg, Miss., succeeding Lt. Col. Ralph D. King, recently assigned to the Armed Forces College, Norfolk, Va. Colonel Skidmore reports to the Waterways Experiment Station from the Okinawa district where he was executive assistant for engineering and operations. Prior to that he was assigned to General Headquarters, Far East Command. During World War II he was Commanding Officer of the 389th Engineer General Service Regiment, European Theater of Operations. Subsequently he served as a Staff Officer with the Army Service Forces, Washington, D. C. His next assignment was that of Research Consultant at the Engineer School, Fort Belvoir, Virginia.

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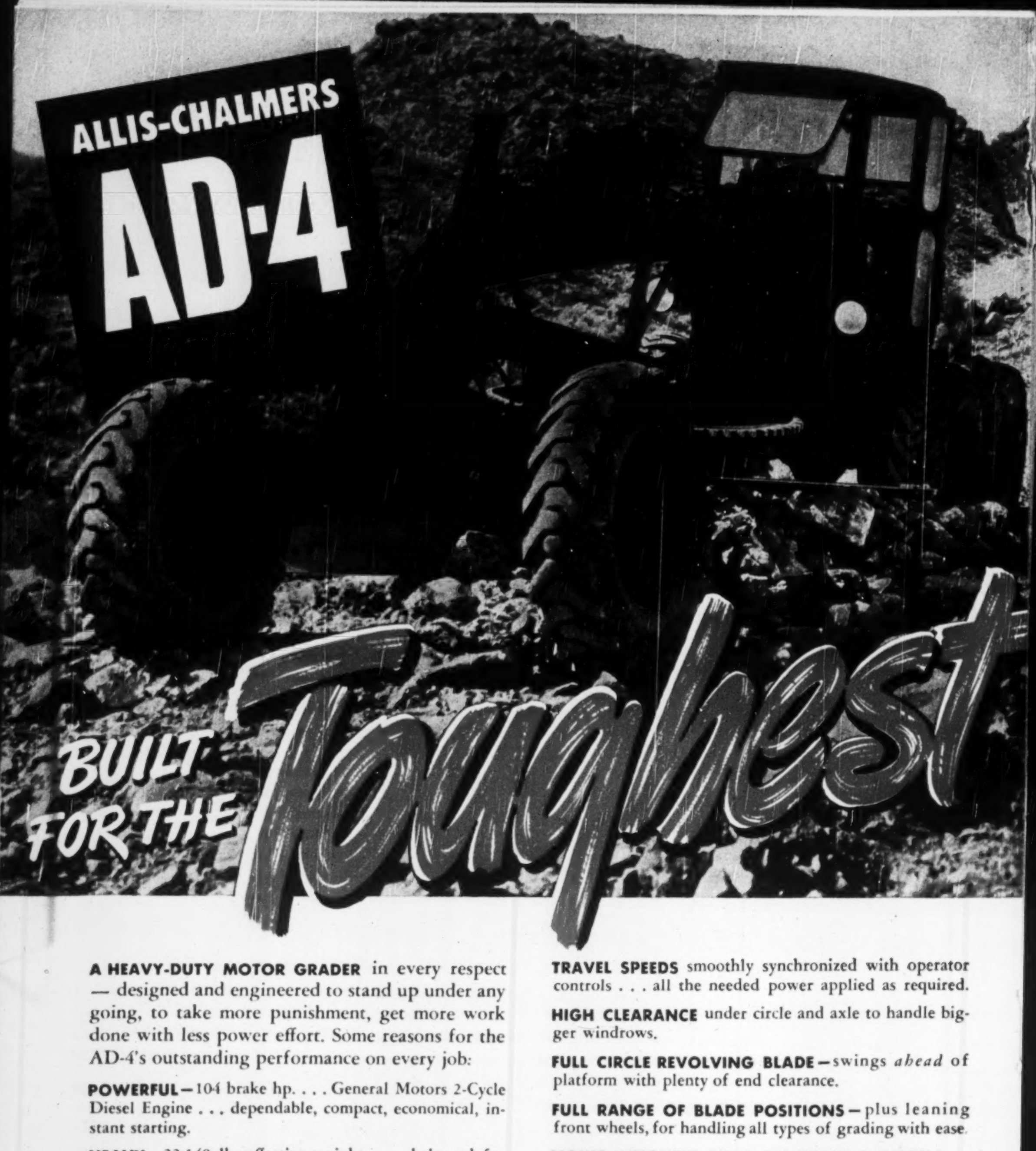

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POWERFUL— 104 brake hp. . . . General Motors 2-Cycle Diesel Engine . . . dependable, compact, economical, instant starting.

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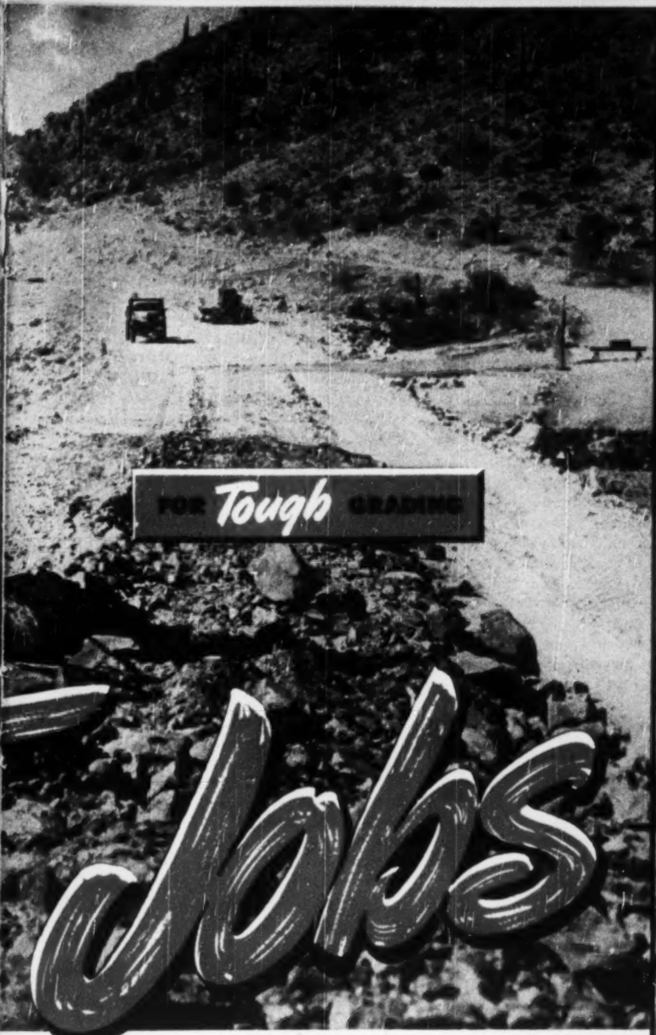
PLUS . . . easier steering, full visibility, larger clutch, numerous other advantages.

"Seeing Is Believing." **Get the full story from your Allis-Chalmers dealer . . . *NOW!***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EDUCATION and RESEARCH

More scholarships

Five scholarships for 1950-1951—three for students at the University of California and two for Stanford University students—have been established by the Bechtel Corporation, engineering and construction organization.

The three University of California scholarships will be given to students in the college of engineering, preferably seniors. The awards are to be approved by the university's committee on undergraduate scholarships upon nominations by the dean of the college of engineering.

At Stanford University, one scholarship will be awarded to a second year student in the Graduate School of Business who is specializing in industrial relations. The other Stanford scholarship, in the school of engineering, would be given to a student specializing in civil, electrical or mechanical engineering, with preference to senior candidates.

Carnegie Institute of Technology has announced that examinations for ten Westinghouse scholarships worth a total of $28,500 will be given on March 10, 1951. Sponsored annually at Carnegie by the Westinghouse Educational Foundation, examinations will be given by the College Entrance Examination Board in all parts of the country.

The scholarships, worth $2,850 each, cover four years' tuition and include cash grants in the freshman and sophomore years. Each year ten of these awards are given to highest ranking secondary school senior men for study at Carnegie in engineering, science or industrial management.

The competition is opened to men who are graduated in the upper quarter of their class between January and September, 1951.

Students should write Carnegie's Chairman of Admissions in Pittsburgh for application forms before Dec. 1, 1950.

Clay mixture

Ceramic laboratory experiments by the provincial government's resources utilization branch in Regina, Sask., have produced a clay mixture that should result in a "very satisfactory large-size sewer pipe body," A. J. Williams, branch director, said recently.

Object of the work is to obtain a mixture using a greater percentage of shale from the lower beds with enough second-grade ball clay to provide the necessary strength required for sewer pipes two to three feet in diameter.

The ball clay, a strength-giving clay of high quality and value generally used in making whiteware, is taken from clay pits near Willows, Sask. The experiments are continuing and, when satisfactorily concluded, the resulting mixture will be used commercially to augment present supplies of stoneware clay from Eastend, Sask.

Coastal engineering

The University of California division of engineering is sponsoring an institute on coastal engineering in Long Beach, Calif., this month.

Topics for discussion include a review of fundamentals of wave action, the development of basic design data, natural and artificial movement of sediment, site criteria for harbors and other coastal works, and the design and construction of structures exposed to wave action.

Specialists connected with coastal engineering projects in all parts of the United States are participating.

TESTING SANDWICH CYLINDERS —Gary Gould, Research Division, New York University college of engineering, examines the contour of a wrinkle produced on the exterior surface of a sandwich cylinder as a result of torsion tests. Directed by George Gerard, this research is sponsored by the Office of Naval Research and seeks to develop formulae for cylindrical sandwich structures consisting of two metal faces separated by a low density wood or plastic core. The cylinder is bolted through hardwood blocks to the two metal end plates, the right one being held stationary. Torsion load is applied by the hydraulic jack through the movable left end plate. Loads are measured by the pressure gage and by a calibrated strain gage tension link at the jack.

Educational Notes

New building—On Oct. 14 the University of New Hampshire at Durham will dedicate Kingsbury Hall, its new engineering building. On that occasion there will be a symposium on "Technology in the Service of Mankind."

Bonneville hires graduates—Bonneville Power Administration has added 114 class-of-1950 graduates in engineering to its staff. All but eight are from Pacific Northwest colleges and universities. Oregon State College contributed 49 graduates, University of Washington 22, Washington State College 7, University of Idaho 7, Montana State College 13, University of Portland 3, Seattle University 2, Gonzaga University 3, M.I.T. 2, University of California 5, California Institute of Technology 1. Western schools have contributed nearly three-fourths of the technical and professional personnel of BPA, according to Administrator Paul J. Raver.

Aggregates research—Albert Litvin, materials engineer for the National Bureau of Standards, has been named structural engineer at Armour Research Foundation of Illinois Institute of Technology. He will do research in lightweight aggregates and concrete. While with the National Bureau of Standards, he supervised the cement testing laboratories at Washington and was responsible for the testing of cement for many large government projects. He is a graduate of the University of Illinois, where he majored in civil engineering.

Prestressed concrete—The University of Detroit is sponsoring a short course on prestressed concrete, presented by the Portland Cement Association. Classes will be conducted by the Portland Cement Association structural engineer, Paul F. Rice. The course will cover a proposed design code, construction practice, details at the job site and in the factory, concrete railroad ties, high strength concrete, review of research fundamental design equations and a typical design problem.

Company scholarship—At the Pennsylvania State College a scholarship has been established by the Heppenstall Co., Pittsburgh, to assist sons and daughters of company employees to get a college education and a degree in engineering, metallurgy or business administration. Each scholarship provides $375 a semester for not more than eight semesters. The scholarships are a memorial to Charles W. Heppenstall, Sr.

RAYMOND

SERVING GULF OIL FOR 40 YEARS

THROUGH THE YEARS, the Gulf Oil Corporation has called in Raymond again and again to expand its facilities. For example,

At Gulf's marine terminal in Port Arthur, Texas, Raymond completed in 1921 a marginal wharf 25 feet wide and [illegible] feet long. Later two similar sections were added to make the wharf more than a half mile long. Last year Raymond resurfaced the existing wharf with reinforced concrete and constructed a new wharf [illegible] feet wide along its entire face—doubling the deck area and permitting deeper dredging to accommodate large vessels. The job was completed well ahead of schedule and with a minimum of interference with Gulf's normal docking operations.

Gulf Oil is one of the leading oil companies which have consistently turned to Raymond for important foundation and structural projects. This wealth of experience is at your disposal.

THE SCOPE OF RAYMOND'S ACTIVITIES—*includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements, borings for soil investigation, and cement mortar lining of pipes by the Centriline Corporation, a Raymond Subsidiary.*

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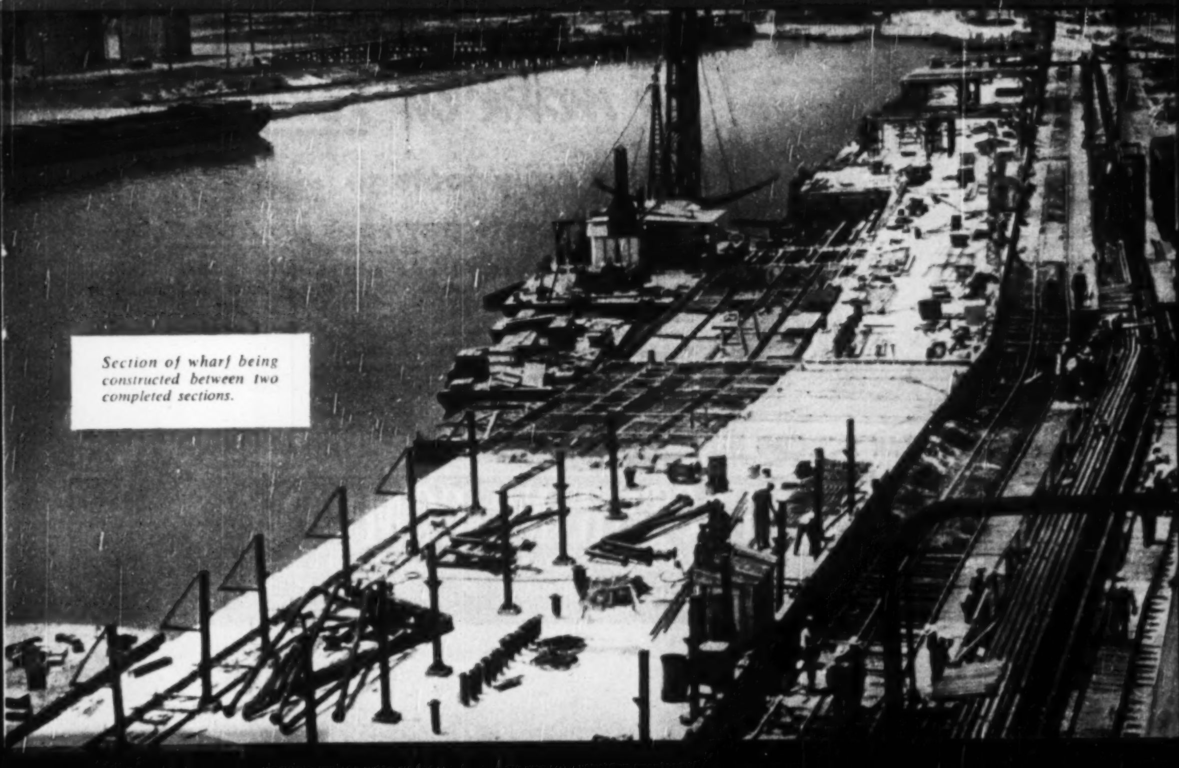
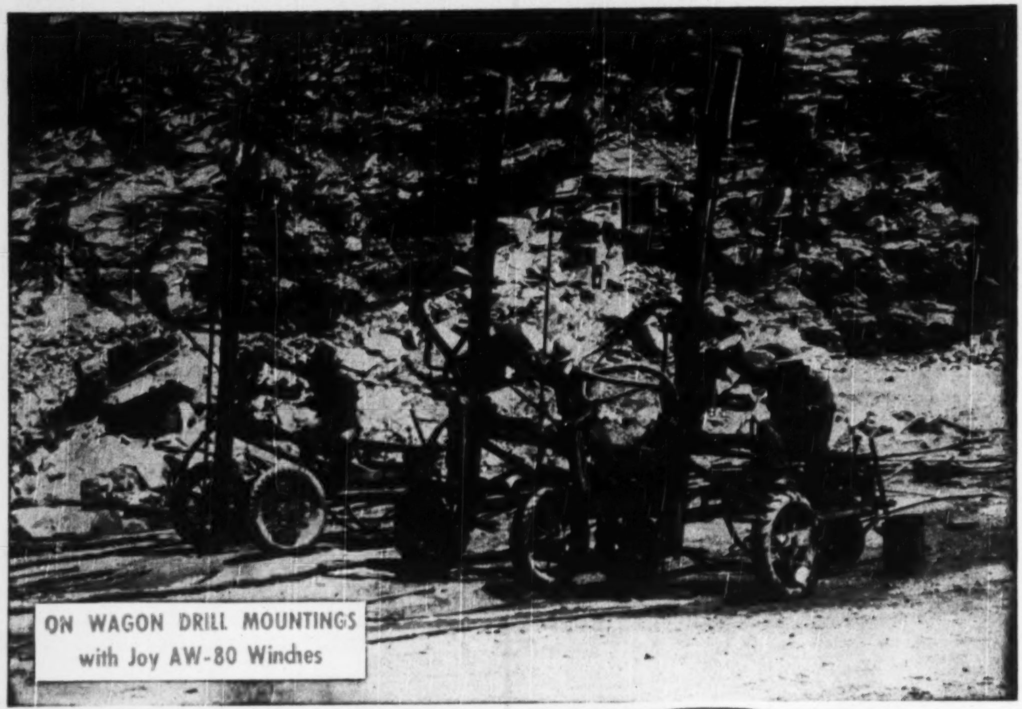


Section of wharf being constructed between two completed sections.



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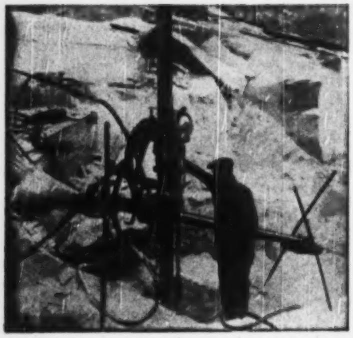

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JOY Silver Streak Drifters feature the exclusive *Dual Valve* with positive cushion control. It gives a harder, more powerful punch—literally makes air do more work. What's more, JOY Drifters *last longer*—give you more feet of hole with less maintenance. Exclusive *cadmium plating*, inside and out, inhibits rust, prevents scoring during run-in, and at the same time, adds power by permitting closer piston tolerances. ● Ask for a trial demonstration on JOY Drifters—the T-300, T-350 or T-400—*prove their all-around superiority right on the job!*

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ELECTIONS AND ACTIVITIES

Newly-appointed members of the Ohio Board of Building Standards, named by Gov. Frank J. Lausche, to replace members whose terms expired, are: Jack F. Folkerth, Columbus, attorney; Joseph M. Gavlak, president of the Cleveland Building and Construction Trades Council; and Thomas E. Hatch, Cincinnati, contractor, all to serve until July 31, 1953. Others are George Marshall Martin, Cincinnati, architect, and Charles Pettibone, Lima architect, both to serve until July 31, 1951. Also on the board is the chief of the Division of Workshops and Factories, and a sanitary engineer of the State Health Department.

J. T. Douglas, minister of highways in the Saskatchewan provincial government, has been elected president of the Canadian Good Roads Association. Other officers are Merrill D. Rawding, Nova Scotia minister of highways and public works, first vice-president; E. C. Carson, British Columbia minister of public works, 2nd vice-president; D. B. McMillan, Alberta minister of public works, 3rd vice-president; E. S. Spencer, Newfoundland minister of public works, 4th vice-president; and W. Beattie Ramsay, engineer and contractor, Regina, 5th vice-president.

Charles D. Zacher is the new president of the Engineering Society of Buffalo, N. Y. Other officers installed are: Arthur F. Uhrlandt, vice-president; Robert F. McKeegan, Jr., secretary, and George Nachbaur, treasurer.

To keep housing problems out of politics was the warning given by Raymond P. Harold, chairman of the Worcester, Mass., Housing Authority, at the recent session of the New England Council of the National Association of Housing Officials.

"It can be done, and it must be done if you are to get honest results," Mr. Harold asserted. Mr. Harold, who is president of the Worcester Savings and Loan Association, said that while he had been in the business of financing private housing for 25 years, he nevertheless favored public housing as a necessity, and he added, "The truth is that decent housing cannot be provided today for the low-income group without subsidy."

Another speaker, John J. Kane, director of the field office of the Public Housing Administration, said that Federal restrictions had made it impossible for local authorities to build single house units in the new national public housing program.

Harold Robinson, chairman of the Springfield Housing Authority, who presided at the sessions, charged irresponsibility on the part of many housing officials in signing papers without even reading them.

"Many local authorities are not enforcing their contractual rights and insisting that architects, contractors, lawyers and others do what they are supposed to do," he said.

CALENDAR

N. C. section, American Society of Civil Engineers, N. C., State College, Raleigh, Oct. 14.

S. W. section, AWWA, Roosevelt Hotel, New Orleans, La., Oct. 15-18.

Public Works Congress and Equipment Show, 9th Regiment Armory, New York City, Oct. 15-18.

Water conference, Engineers' Society of Western Pennsylvania, Hotel William Penn, Pittsburgh, Pa., Oct. 16-18.

National Association of Housing Officials, Detroit, Mich., Oct. 16-19.

Construction section, National Safety Congress, Stevens Hotel, Chicago, Ill., Oct. 17-18.

National Conference on Industrial Hydraulics, Sherman Hotel, Chicago, Ill., Oct. 18-19.

Pennsylvania section, AWWA, Roosevelt Hotel, Pittsburgh, Pa., Oct. 18-20.

Engineers' Council for Professional Development, Tudor Arms Hotel, Cleveland, Ohio, Oct. 20-21.

National Public Health Engineering Conference, University of Florida, Gainesville, Oct. 23.

Structural Clay Products Industry, Broadmoor Hotel, Colorado Springs, Colo., Oct. 23-26.

American Institute of Steel Construction, Shamrock Hotel, Houston, Tex., Oct. 23-26.

American Concrete Institute, Mayflower Hotel, Washington, D. C., Oct. 24-26.

California section, AWWA, U. S. Grant Hotel, San Diego, Calif., Oct. 24-27.

Carolinas Branch, A.G.C., White Sulphur Springs, W. Va., Oct. 30-31.

Chesapeake section, American Water Works Association, DuPont Hotel, Wilmington, Del., Nov. 1-3.

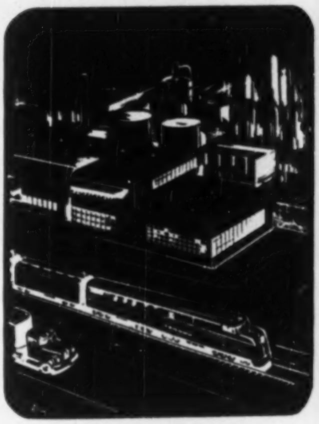
Florida and Cuban sections, American Water Works Association, Ft. Lauderdale, Fla., Nov. 13-15.

National Reclamation Association, Hotel Davenport, Spokane, Wash., Nov. 15-17.

Building Research Advisory Board, Research correlation conference, National Academy of Sciences Bldg., Washington, D. C., Nov. 21.

Indiana Water Conservation conference, Purdue University, Lafayette, Ind., Nov. 28-29.

Arizona Sewage & Water Works Association, Pioneer Hotel, Phoenix, Ariz., Nov. 30-Dec. 2.



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You can call in Layne and then contract for the complete job; survey, test drilling, drilling of the well, setting casing and sand screen, building and installing the pumps and final testing—all by well trained men of the Layne organization. No divided responsibility. For further information, catalogs, etc., address

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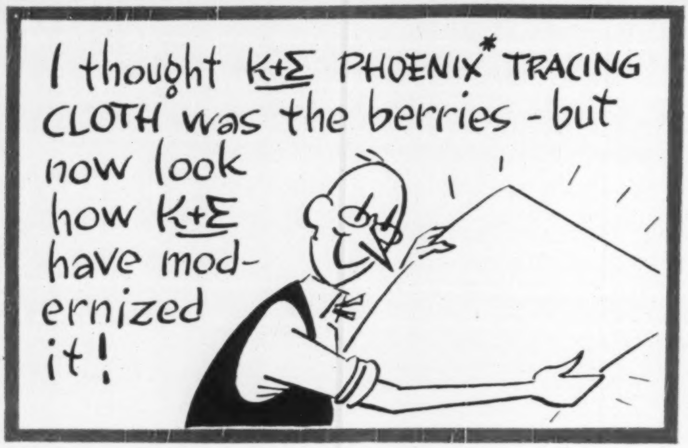
K+E NEWS

-by don herold-


I thought K+E PHOENIX* TRACING CLOTH was the berries - but now look how K+E have modernized it!
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how good can a tracing cloth get!

PHOENIX* Tracing Cloth always did feel good to an engineer's pencil, but, now, new improved N166 PHOENIX feels better than ever—performs better—is better. It's whiter than ever—which gives it better contrast for pencil line drawings. (This helps reprint transparency.)

The new PHOENIX is toughened to take today's new vigorous printing techniques—repeated trips under higher powered lights or through hotter printing machines.

The new N166 thrives under an ultra-violet test, which equals thousands of prints on a machine, or years of exposure to daylight. No appreciable yellowing.

Improved PHOENIX resists heat of glass cylinders even as high as 250° to 275°. Will not stick.

K&E have also given this cloth a Bureau of Standards three day 212° heat test, which is the equivalent of years of aging. It retains its whiteness remarkably well.

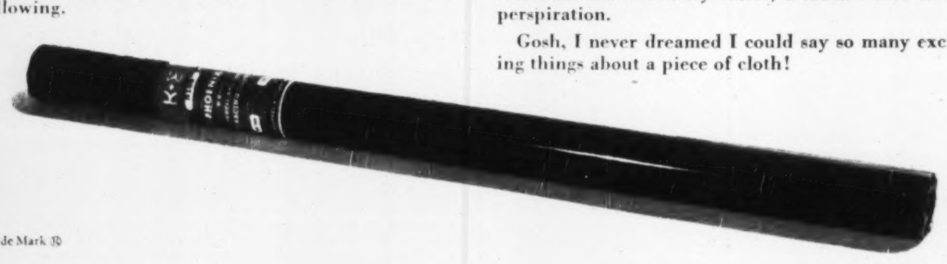
The new PHOENIX resists ammonia vapors and discoloration by contact with diazo prints in storage.

Its surface takes friction heat of motor erasers without softening or stain.

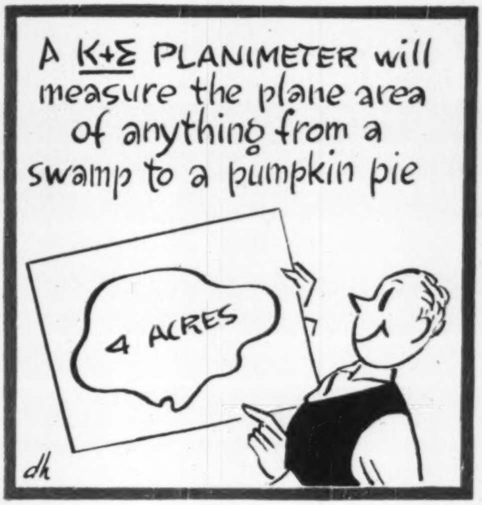
2-way water resistant

Both sides of the new PHOENIX are wonderfully water-resistant. This is important, since, if one side is more water-resistant than the other, the weaker side runs the show. By water, I mean water AND perspiration.

Gosh, I never dreamed I could say so many exciting things about a piece of cloth!



*Trade Mark ®


A K+E PLANIMETER will measure the plane area of anything from a swamp to a pumpkin pie
4 ACRES
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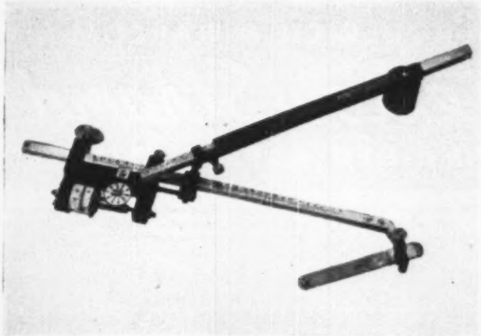
—and it's loaded with inbuilt K&E precision

Don't ask me *how* it works. It's Greek to me. But you engineers probably understand that a planimeter will measure the area of an irregular plane if you push a little point accurately around its outline.

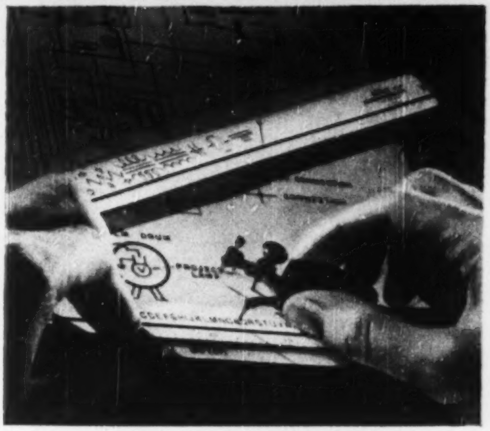
Engineers also tell me a planimeter has to be about the most accurate thing on wheels, or it will tell falsehoods. If it has rheumatism in any of its joints, water on the knee, or a crick in its funny bone, watch out.



Engineers tell me that K&E COMPENSATING POLAR PLANIMETERS are built beautifully for long-lasting cat's-whisker precision—that is, unless you go dropping them on the floor or using them to fight mosquitos.

A new K&E Manual comes with each instrument. It includes description of a unique method, which greatly increases the size of the area that can be measured.

you can play lettering tunes—on LEROY*



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Then there are Symbol Drawing Templates—Electrical, Welding, Map, Geological and Mathematical.

Also special templates made specially to order: trade marks and designs, frequently used words and phrases. Tell your K&E distributor or branch or the factory at Hoboken what you want. Send for a "LEROY Lettering and Symbols" booklet.

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You can form perfect letters the first time, and achieve speed and skill in a matter of minutes.

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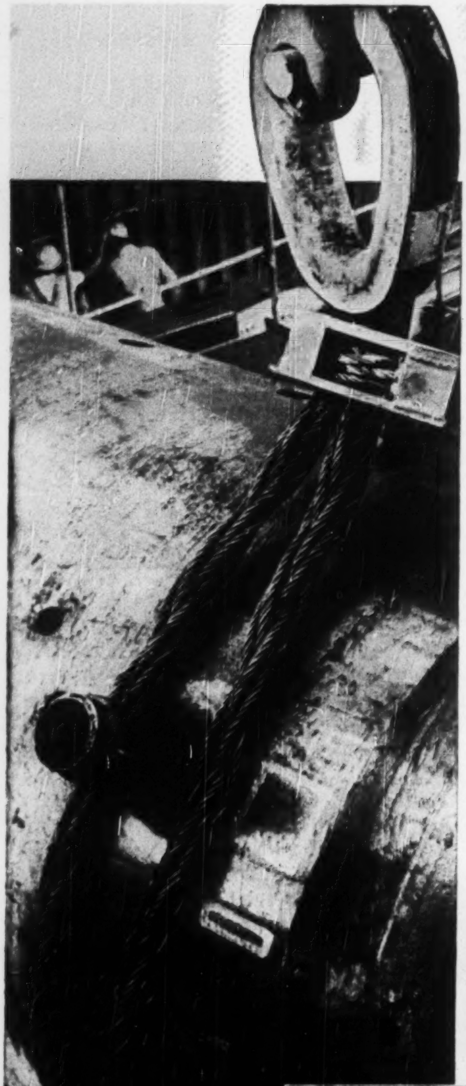


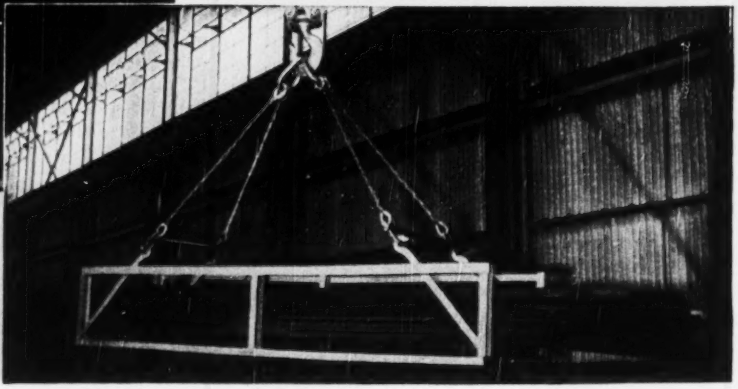
Here's the grip for the trip

Do your lifts consist of occasional difficult loads . . . or do you require a steady series of pickups engaging a minimum crew? In either case, flexible Yellow Strand *Braided* Safety Slings* will provide the right grip for the trip. And you'll be set to cut handling time, and to lower costs, as compared with the use of bulkier slings.

Patented *braiding* increases the pliability of stout Yellow Strand Wire Rope. A choker or basket hitch conforms readily to odd shapes, provides more security for unbalanced or slippery loads. Direct connections—via hook, thimble, shackle, socket or special fitting—are easily attached, owing to the relatively light weight and high kink-resistance of Yellow Strand *Braided* Slings. Send details of your application now for a recommendation by B & B engineers.

Broderick & Bascom Rope Co., St. Louis 15, Mo.
Branches: New York, Chicago, Houston, Los Angeles, San Francisco, Portland, Seattle *Factories:* St. Louis, Peoria, Houston, Seattle

BRODERICK & BASCOM
Yellow Strand
BRAIDED SAFETY SLINGS



*PATENTS: U. S., 1478850, 1924671, 2142641, 2142642, 2209505; CANADIAN, 282874, 298068

OBITUARY

E. Paul duPont, Sr., 63, an engineer and member of the duPont family of Wilmington, Del., died at Philadelphia, Pa., Sept. 26. He was a 1909 graduate of the University of Pennsylvania.

Lewis K. Bevan, 66, a retired construction engineer for the Pennsylvania Railroad, died Sept. 20 at Ardmore, Pa. He had been with the railroad for 47 years before he retired six months ago.

Henry S. Long, Sr., 60, engineer for the rights-of-way division of the Alabama highway department, died in Montgomery, Sept. 19. Formerly for eight years he headed the State Tax Commission.

Walter Washabaugh, 79, civil engineer and formerly city manager of Charlottesville, Va., died Sept. 20. He was an 1890 civil engineer graduate of Virginia Military Academy. Most of his life was spent in railroad construction in the South. He was a veteran of the Spanish American and first world war.

Andrew MacSmith, 59, chief draftsman of the Interior Department's Reclamation division, died in Washington Sept. 22.

John L. Maynard, 62, one time engineer for the New York State Highway Department, died recently in Springfield, Mo. He was graduated from Clarkson Institute, Potsdam, N. Y., as a civil engineer in 1911.

Sydney A. Parsons, 87, retired engineer active in development of Everett, Wash., and formerly for 36 years with the Massachusetts Highway Commission as assistant engineer, died at Manchester, Mass. Mr. Parsons was graduated from Massachusetts Institute of Technology, 1885.

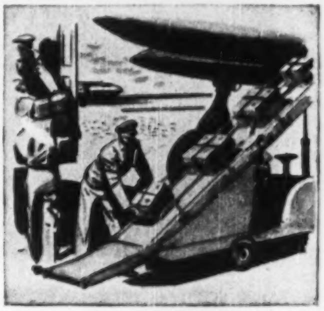
William R. Tompson, 67, former superintendent of highways in Wakefield and Belmont, Mass., died at Wakefield Sept. 27. He was a graduate of Tufts College and during World War I was engaged in engineering work at Fort Devens, Mass. His municipal posts covered 30 years' service and he was a past president of the Massachusetts Highway Association.

Ralph R. Tinkler, 62, resident engineer for the Ohio highway department and former engineer of the Stark

Completes 300 TV sets—meets daily quota (at a cost of $4.70)

Delicate coils were needed by Midwest manufacturer to complete 300 TV sets . . . and Massachusetts supplier was 920 miles distant! Air Express assured delivery by 8 o'clock next morning, so manufacturer ordered 500 men to report for work. Shipment arrived 7:20 A.M.—production rolled! Shipping cost for 17-lb. carton only $4.70! Manufacturer uses Air Express regularly to keep business in high gear.

$4.70—and special pick-up and delivery included! Low Air Express rates cover door-to-door service. More convenient—easy to use. Just phone for pick-up! (Many low commodity rates in effect. Investigate.)



Air Express goes on all flights of Scheduled Airlines. Shipments keep moving around the clock—speeds up to 5 miles a minute. *Experienced* handling. Phone Air Express Division, Railway Express Agency, for *fast action*.

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GETS THERE FIRST

Rates include pick-up and delivery door to door in all principal towns and cities

A service of
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WORLD'S LARGEST MOTO-CRANE

lifts and transports up to 45 Tons with its two WAUKESHA *Diesels*

The *Lorain* MC-820 Moto-Crane has two WAUKESHA Super-Duty DIESELS (Model WAKD) six cyl., 6¼ x 6½ in., 1197 cu. in. displ. One engine propels the rubber-tired carrier which transports the unit (weight 65 tons) at 18 m.p.h. The second Waukesha Diesel installed in cab of crane (as shown below) powers revolving turntable, hoist, swing and boom derricking; supplying power to lift loads up to 90,000 lb.

● New fields in heavy material handling by mobile equipment, are being opened by this giant, rubber-tired two-engined crane. Said to be the world's largest, the first of these Waukesha-Diesel-powered Lorain MC-820 Moto-Cranes is working in the world's largest steel mill. It has a safe-rated lifting capacity of 45 tons (90,000 lb.) at a 12-ft. radius. Thirty years ago when Thew built the first portable crane—also a Waukesha-powered Lorain—its capacity was only 3½ tons. The latest Lorain's ability to lift and transport far heavier loads than any previous portable crane, extends the basic advantages of the moto-crane for handling heavy material in steel mills, steel erection, ship and bridge building, oil fields, logging and many other industries.

A crane is no better than its engines. With their 30 years of motorized crane experience, Thew Shovel Company engineers chose two big Waukesha Super-Duty Diesels to power the world's largest moto-crane. Waukesha Diesels are winning recognition everywhere as the world's finest power plants of their size and type. Get Bulletin 1415.

WAUKESHA MOTOR COMPANY • WAUKESHA, WIS.
NEW YORK • TULSA • LOS ANGELES

County surveyor's office, died at Canton, Ohio, Sept. 28. He was a graduate of Case Institute of Technology.

Gratz B. Strickler, 80, retired civil engineer who took part in constructing the buildings for the St. Louis world's fair of 1904, died in Washington, D. C., Sept. 11. He had done engineering work for the Panama Canal and on bridges in Cuba.

Geo. A. Mitchell, 71, sanitary engineer, died in Bridgeton, N. J., Sept. 28. He was a graduate of Rutgers University and for two years was an assistant professor there.

Floating caisson used on Grand Coulee repairs

The Pacific Bridge Co. of San Francisco, which last spring completed a one-year repair contract on the spillway bucket of Grand Coulee Dam in north central Washington, has been awarded a second contract in the amount of $2,662,866 for further repairs and for river improvements.

The contract involves further use of a floating caisson, which is sunk inside the spillway bucket to create a working chamber 100 ft long below water level but under natural air pressure. It also calls for placing 15,000 pieces of armor rock and 34,000 tons of riprap underwater downstream to protect the banks of the Columbia River from the swirling currents caused by the 320-ft fall over the dam.

• Bank protection job—Another contract for bank protection work is held by the Morrison-Knudsen Co., Inc., of Boise, Ida., with completion specified by next June. This company now is transporting approximately 350,000 tons of armor rock and riprap across the river below the dam, using a barge running from a 2-in. diameter highline cable. The barge carries one and sometimes two giant trucks across the 500-ft width of the Columbia at this point, with as much as 120,000 lbs of rock. It is maneuvered by two lines, one at either end of the barge, to an angle diagonal to the current, so the flow of the river in a large measure pushes the barge across the stream.

The contract will require 7,000 trips for the barge, with crossings averaging approximately two minutes and round trips completed in as little as eight minutes. Barging can be carried out only in the winter low-water season.

W. M. Cowals is resident engineer for the Bureau of Reclamation on the Morrison-Knudsen job while D. S. Davis serves in the same capacity on the Pacific Bridge work.

THE DEPENDABLE STRENGTH OF AMERICAN CONCRETE CYLINDER PIPE IS A RESULT OF SUPERIOR DESIGN

Steel and concrete components of this outstanding composite design work together to give superior resistance both to internal and external stresses.

① Steel cylinder provides a positive water seal or membrane as well as part of the required total steel area*. (Thickness of the cylinder varies according to pipe diameter and general design requirements). Each cylinder is hydrostatically tested to a unit stress of at least 22,000 psi.

② Centrifugally spun concrete lining is of proper thickness and dense composition. Its thickness adds rigidity and strength through "arching" effect (nominal minimum lining thickness is ½" for 14" and 16" diameters and ¾" for larger diameters). Cylinder is lined prior to rod wrapping.

③ Steel reinforcing rods, which supplement the required steel area*, are wrapped under measured tension and accurate spacing around the concrete lined cylinder. The section modulus is thus increased while the concrete lining is placed under slight initial compression. The result is, in effect, a modified prestressed design.

④ Dense concrete jacket or coating (nominal minimum 1" thickness over the cylinder) is "locked" around the rod wrapping over the entire surface of the cylinder. This is an important structural feature.

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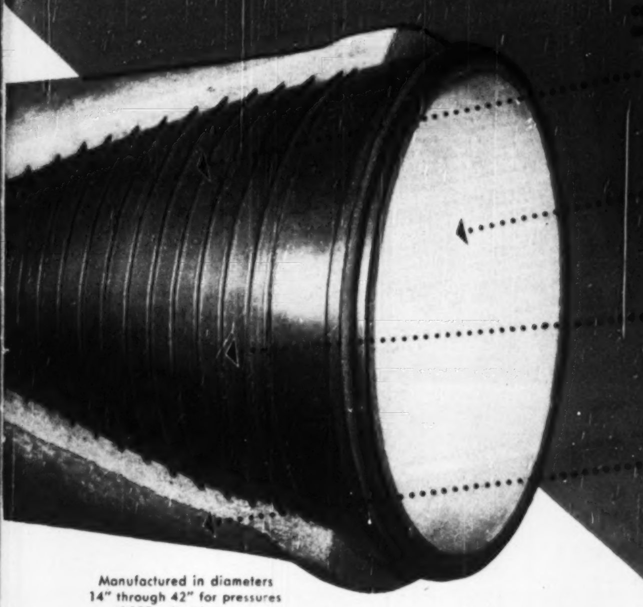
*Total cross sectional steel area is based on 16,500 psi max. allowable unit stress at the design operating pressure.



Manufactured in diameters 14" through 42" for pressures of 100 psi and greater.

RUGGED TEST SHOWS IMPRESSIVE RESULTS

Practical tests recently conducted for the Underwriters' Laboratories, Inc. prove the remarkable strength of American Concrete Cylinder Pipe under earth loads which far exceeded the average trench conditions. Several sections of pipe were installed under 10 ft. of earth cover. The ordinary method of pipe bedding was employed and backfilling was accomplished by flooding the trench. Machinists' calipers were then used to measure changes in inside diameters at several points along each section of pipe. The average results were as follows:

	Vertical Diameters in inches	Horizontal Diameters in inches
42" Diameter Pipe	Minus .314	Plus .318
30" Diameter Pipe	Minus .052	Plus .050
21" Diameter Pipe	Minus .010	Plus .009

Subsequent examination of the concrete linings disclosed that they were sound and unimpaired under these extraordinary earth loads.

Superior design affords the most economical and effective use of steel and concrete to produce the best quality of pressure pipe at less cost to the purchaser. Economical first cost plus ease of installation, sustained capacity and trouble free service all help to reduce the cost of delivered water.

Complete information upon request.

Installing a section of 30" pipe prior to earth loading tests.

American
PIPE AND CONSTRUCTION CO.

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Lines

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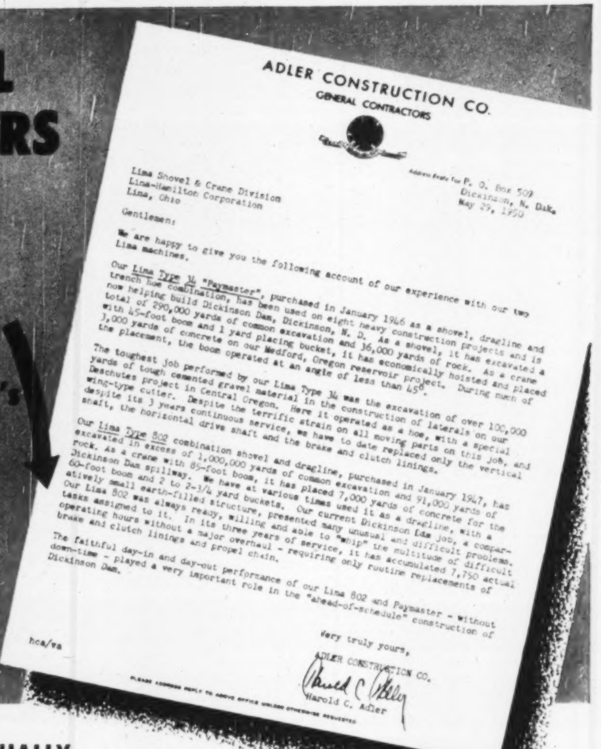
"7750 ACTUAL OPERATING HOURS WITHOUT A MAJOR OVERHAUL!"

That's Adler Construction Company's Experience with a

LIMA TYPE 802



ADLER CONSTRUCTION CO.
GENERAL CONTRACTORS

Lima Shovel & Crane Division
Lima-Hamilton Corporation
Lima, Ohio

Address Reply to P. O. Box 509
Dickinson, N. Dak.
May 29, 1950

Gentlemen:

We are happy to give you the following account of our experience with our two Lima machines.

Our Lima Type 34 "Paymaster", purchased in January 1946 as a shovel, dragline and trench hoe combination, has been used on eight heavy construction projects and is now helping build Dickinson Dam, Dickinson, N. D. As a shovel, it has excavated a total of 290,000 yards of common excavation and 36,000 yards of rock. As a crane with 45-foot boom and 1 yard placing bucket, it has economically hoisted and placed 3,000 yards of concrete on our Medford, Oregon reservoir project. During much of the placement, the boom operated at an angle of less than 45°.

The toughest job performed by our Lima Type 34 was the excavation of over 100,000 yards of tough cemented gravel material in the construction of laterals on our Deschutes project in Central Oregon. Here it operated as a hoe, with a special wing-type cutter. Despite the terrific strain on all moving parts on this job, and despite its 3 years continuous service, we have to date replaced only the vertical shaft, the horizontal drive shaft and the brake and clutch linings.

Our Lima Type 802 combination shovel and dragline, purchased in January 1947, has excavated in excess of 1,000,000 yards of common excavation and 91,000 yards of rock. As a crane with 85-foot boom, it has placed 7,000 yards of concrete for the Dickinson Dam spillway. We have at various times used it as a dragline, with a 60-foot boom and 2 to 2-3/4 yard buckets. Our current Dickinson Dam job, a comparatively small earth-filled structure, presented many unusual and difficult problems. Our Lima 802 was always ready, willing and able to "whip" the multitude of difficult tasks assigned to it. In its three years of service, it has accumulated 7,750 actual operating hours without a major overhaul - requiring only routine replacements of brake and clutch linings and propel chain.

The faithful day-in and day-out performance of our Lima 802 and Paymaster - without down-time - played a very important role in the "ahead-of-schedule" construction of Dickinson Dam.

Very truly yours,

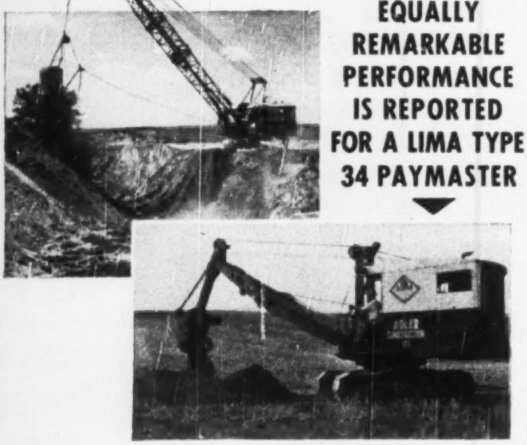
ADLER CONSTRUCTION CO.

Harold C. Adler

Harold C. Adler

hca/va

PLEASE ADDRESS REPLY TO ABOVE OFFICE UNLESS OTHERWISE REQUESTED



EQUALLY REMARKABLE PERFORMANCE IS REPORTED FOR A LIMA TYPE 34 PAYMASTER

This company's outstanding record in completing jobs ahead of schedule has been the subject of several feature articles appearing recently in construction magazines. In these articles, as well as in the accompanying letter, Adler gives his LIMA machines credit for playing a major role in these achievements.

Here is another case showing why it will pay you to consult a LIMA representative before you purchase your next shovel, crane or dragline. The LIMA line includes Shovels ¾ to 6 yards, Cranes to 110 tons and Draglines variable. Truck-mounted cranes in 20 and 35 ton capacities.

Offices in principal cities of the world.

Lima Shovel and Crane Division

LIMA, OHIO

LIMA HAMILTON CORPORATION

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

UNIT PRICES BID BY CONTRACTORS

3-way expansion at Philadelphia International Airport

Bidding on airport extension construction to be carried on without interfering with normal Philadelphia International Airport operations, six contractors priced their proposals 21.5% apart. The low bidder, Progressive Builders Inc., at $2,170,504, was low enough on two of the three sections to be low for the whole job, 4.3% below the second lowest bidder. Bids were taken Aug. 29, 1950, by the Philadelphia, Pa., Department of Public Works.

The contract was divided into three parts, Part A, installation of drainage pipe and appurtenances for first stage apron and field expansion; Part B, main drainage line and appurtenances; Part C, grading and paving runway extension, taxiways, portion of the apron and adjacent areas. The contractors could choose between three alternates for Part B, corrugated metal pipe and pipe arch, reinforced concrete culvert pipe or corrugated metal structural plate culvert pipe. All six bidders bid on the last type mentioned.

The airport, 6.5 miles southwest of the city, will be in operation during all of the construction, and the work must be arranged to cause a minimum of interference. Each piece of equipment in the approach or take-off zones must be marked with a three-foot square, orange and white-checkered flag during the day, and with a red obstruction light at night. Grading, drainage and paving of the runway extension must be completed first, by Dec. 15, 1950. All other storm water drainage and the remaining asphaltic concrete paving and conduit structures must be done by July 31, 1951, the cement concrete paving and related conduit structures by Oct. 31, 1951. Acceptable concrete will have not more than 5.5 gallons of water per bag of cement.

The drainage structures referred to as Type A, B, etc. in the table below are stormwater catch basins for single and multiple gratings which vary in size from 27x27 inches to 18x60 inches with variable depths. All materials, equipment and labor must be supplied by the contractor. The job site is a mile from a railhead.

Unskilled laborers will get a minimum $1.475 an hour; power equipment operators, $2.125-2.90; cement finishers, $2.525. Bidders include:

1 Progressive Builders Inc., Pennsauken, N. J. (contract)	$2,170,504.33
2 Union Paving Co., Philadelphia	2,264,778.93
6 Frank Mark Co., Philadelphia	2,636,782.05

Part A—Drainage pipe and structures

1 Progressive Builders Inc. (C)	$551,193.75
2 Union Paving Co.	563,070.75

Items	Quantity	Unit prices 1 C	Unit prices 2
Addl pipe-bed matl....cy	1,000	$1.50	$ .75
8" corrug metal pipe, perfd.....lf	9,795	6.26	9.00
8" CM pipe.....lf	605	5.01	6.85
CM culv pipe, 12".....lf	2,843	3.44	6.00
15".....lf	1,501	6.13	6.60
18".....lf	1,060	5.93	7.00
21".....lf	1,442	7.87	8.10
27".....lf	4	11.42	13.10
30".....lf	394	12.27	13.75
33".....lf	653	12.36	12.00
36".....lf	1,895	17.54	18.45
42".....lf	960	21.92	20.00
48".....lf	379	24.88	21.95
60".....lf	1,430	35.19	29.65
72".....lf	1,915	44.81	36.00
78", 10-gage structl plate.....lf	2,434	53.90	46.75
Reinf conc drain struct			
Longit catch basin...lf	2,800	21.38	20.80
Type A special.....ea	15	273.00	420.00
Type B.....ea	10	691.00	1,150
Type C.....ea	3	940.00	1,250
Type D.....ea	1	797.00	1,500
Type F.....ea	2	1,559	2,000
Type K.....ea	2	893.00	1,200
Type M.....ea	2	1,497	2,600
Type N.....ea	5	2,403	3,400
Type P.....ea	3	2,747	3,700
CM drain struct			
Type G.....ea	2	466.00	475.00
Type H.....ea	2	576.00	450.00
Drain struct RC Type A or CM Type G.....ea	23	273.00	400.00

Part B, Alt C—Main drainage line

1 Union Paving Co.	$368,499.00
2 Buckley & Co. Inc, Phila	395,647.25
3 Progressive Builders Inc. (C)	407,093.85

Items	Quantity	Unit prices 3 C	Unit prices 1
15" CM culv pipe.....lf	310	$6.27	$5.50
18" CM culv pipe.....lf	25	7.27	6.00
84" CM culv pipe, 10-gage struct plate.....lf	7,440	52.81	47.35
Drain struct			
CM, Type H.....ea	12	576.00	605.00
RC, Type N.....ea	1	2,403	3,300
RC, Type P.....ea	1	2,747	3,800

Part C—Grading and paving

1 Progressive Builders Inc. (C)	$1,212,216.73
2 Samuel Glasgow, Glenside, Pa.	1,293,232.35
3 Geo. M. Brewster & Son, Inc., Bogota, N. J.	1,325,547.40
4 Union Paving Co.	1,333,209.18

Items	Quantity	Unit prices 1 C	Unit prices 4
Fencing, reloc.....lf	9,280	$1.91	$1.95
New chain-link fence...lf	4,265	2.70	2.80
New dbl-fence gate, 16' wide.....ea	4	194.00	205.00
Uncl excav.....cy	211,512	.55	.68
Excess select excav matl, load, haul to disposal area #2.....cy	20,000	.55	.80
Borrow excav.....cy	73,456	.80	.68
Portland cmt conc pav, 12" (air entr).....sy	82,728	6.18	6.68
Dry bound mac base crs, 9" & 11".....cy	30,33[illegible]	7.00	9.75
Bit prime coat.....gal	42,015	.15	.19
Asph conc pav (hot plant mix) 3".....sy	105,000	1.60	1.50
var. thickness.....T	50	9.75	15.00
Bit matl, seal ct.....gal	21,000	.15	.16
Agg seal cover			
for runway pav.....T	431	3.48	8.00
all other pav.....T	619	3.48	8.00
Bit tack coat.....gal	35,000	.15	.16
Oper city-own compaction unit.....tuhr	650	10.00	13.00
Undergr duct, 4" inside.df	39,074	1.76	.95
Watering.....M gal	500	10.00	11.00
Clear & grub.....ac	36	150.00	265.00

● tuhr — traction unit hour ● df — duct foot

Installing possible protection over storm water drainage lines will be paid at the following fixed unit prices:

Item	Antic quan	Unit price	Incid's Incl
Portl cmt conc.cy	800	$32.00	Formwk, curing
Reinf steel.....lb	50,000	.12	Pl ties, chairs
Excavation....cy	100	2.25	bkfl, compact
Sheath & shor lumber			
Sheath & shor lumber ordered, lip.....Mfbm	25	90.00	Fastenings

How Does Calcium Chloride *Improve* COLD WEATHER CONCRETE?

"The Effects of Calcium Chloride on Portland Cement" is a semi-technical book that clearly presents the facts on the use of Calcium Chloride. It is filled with graphs, tables, charts and contains much material not heretofore available. This information will be of great interest to contractors, architects, engineers, plant operators and men in allied fields. For your copy, write on your company letterhead to the address below . . . there is no obligation.

SOLVAY Calcium Chloride

- CUTS DELAYS
- SPEEDS STRENGTH
- ADDS EXTRA SAFETY

SOLVAY SALES DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street New York 6, N. Y.

"Surveyed" your hauling costs lately?

DODGE trucks are "Job-Rated" to cut costs!

"Job-Rated" ...for low cost transportation

It's a pleasure to "survey" truck operating and maintenance costs—when they're *low*.

And the best way to keep costs low is to standardize on Dodge "*Job-Rated*" trucks—because they're "*Job-Rated*" for low-cost hauling.

Dodge trucks are powered with engines that are "*Job-Rated*" to give you top-notch performance, with economy. You'll enjoy lower gas and oil costs . . . fewer repair bills, too.

Remember . . . "It's a long haul between overhauls" with Dodge "*Job-Rated*" trucks!

Take a look at the list of other Dodge truck advantages at right. Then . . . for a good deal . . . see your Dodge dealer today!

POWER: . . . 8 great truck engines—each "*Job-Rated*" for *PLUS* power.

ECONOMY: . . . priced with the lowest. "*Job-Rated*" for dependability and long life.

BIGGER PAYLOADS: . . . carry more without overloading axles or springs because of "*Job-Rated*" *WEIGHT DISTRIBUTION*.

EASIER HANDLING: . . . sharper turning! Parks in tight places. "*Job-Rated*" maneuverability!

COMFORT: . . . widest seats . . . windshield with best vision of any popular truck. Air-cushioned, adjustable "chair-height" seats.

SAFETY: . . . finest truck brakes in the industry . . . hand brake operating independently on propeller shaft on *all* models—½-ton and up.

With all their extra value **DODGE** "Job-Rated" **TRUCKS** are priced with the lowest

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager
J. A. MAHONEY, Reports
M. R. ROESSLER, Statistics

WATER SUPPLY

BIDS ASKED

N. C., Williamston—B.A. 10/17—Town, R. H. Cowman, mayor, Contr. 2, 300,000 gal. elevated tank on 100 ft. tower. Plans deposit $15. Henry L. & Thomas W. Rivers, Greenville, engrs.

Tex., Austin—B.A. 10/24—Board of Regents, University of Texas, Austin, water lines. $35,000. Plans deposit $25. Julian Montgomery, 602 West Ave., engr.

LOW BIDDERS

Md., Hyattsville—Washington Suburban Sanitary Comn., Hamilton St., Sept. 25, Contr. 843-W, 72,000 ft. 6- to 12-in. asbestos cement water pressure pipe, Class 150, furnishing, del. 300 tons AWWA c.i. water pipe fittings, from Keasbey & Mattison Co., 1713 K St. N.W., Wash., D. C., **$121,640**. CD 9/15.

▲ **Pa., Phila.**—Dpt. Pub. Wks., City Hall Annex, Sept. 12, preliminary treatment plant, appurtenances at Queen Lane Filter Plant, from Progressive Builders, Inc., 315 Market St., Camden, N. J., **$2,397,078**. CD 9/6.

CONTRACTS AWARDED

▲ **N. Y., Niagara Falls**—City, Sept. 13, structures and equip., incl. pump. station, south of Buffalo Ave. at 43 St., to McLain Constr. Corp., 275 Mayville Ave., Kenmore, **$737,690*****pumping equip., to Worthington Pump & Machy. Corp., 401 Worthington Ave., Harrison, N. J., **$290,211*****electrical equip. and electrical work, to Ferguson Electric Constr. Co., Inc., 333 Ellicott St., Buffalo, Zone 3, **$288,000**. Grand total $1,315,901. CD 8/2.

SEWERS, WASTE DISPOSAL

BIDS ASKED

N. C., Williamston—B.A. 10/17—Town R. H. Cowan, mayor, Contr. 1, T. C. pipe, 8, 10, 15, 18 in. and 15 in. c.i. pipe. Plans deposit $15. Henry L. & Thomas W. Rivers, Greenville, engrs. CD 4/14

Tex., San Antonio—B.A. 10/19—City, City Hall, Military Plaza, incinerator, Tampico and Brazos Sts., $50,000. W. W. Toxey, city engr. CD 7/26, under LB.

Tex., San Antonio—B.A. 10/19—City, City Hall, Military of Texas, Austin, sanitary sewers, $50,000; storm sewers, $55,000. Plans deposit $25 each. Julian Montgomery, 602 West Ave., engr.

LOW BIDDERS

Ark., Mountain Home—City, Sept. 21, sewerage sys. imprvs., from Worth James Co., Pyramid Bldg., Little Rock, **$236,285**. CD 9/13.

Calif., Oakland and Alameda—East Bay Municipal Utility Dist., 512 16 St., Oakland, Sept. 22, Sect. 1 of Alemeda Interceptor Sewer and Sect. 1-B of South Interceptor, Spec. SD-46, from P. & J. Artukovich, Inc., 13305 S. San Pedro St., Los Angeles, **$282,826**. CD 9/15.

† **Me., Limestone**—U. S. Eng., N. E. Div., Army Base, Boston Mass., Sept. 22, sewerage treatment plant, Eng. 19-016-51-9, Lot 1, from J. R. Cianchette, 120 Main St., Pittsfield, Mass., **$582,353**.

N. J., Beverly—Beverly Sewage Treatment, Beverly, rejected bids Sept. 13, Contr. 4, sewage treatment plant alterations, imprvs. and sanitary sewer extens., will re-advertise; received bid Sept. 13, Contr. 3, from Charles Moses, Edgewater Park, **$22,525**. CD 9/8.

Tex., Plano—City, Sept. 22, sewage treatment plant and sanitary sewer lines, sys. rehabilitation partially, from H. D. Gillis, Route 1, Box 215, Mineral Wells, **$51,115** and **$50,000** respectively. Homer A. Hunter, 4707 Greenville Ave., Dallas, engr.

Tex., San Augustine—City, Sept. 21, sewer plant from H. D. Gillis, Tyler, **$50,446**; sanitary sewer distr. sys. exten., imprvs. from Wilks, Dake & Steed, P. O. Box 573, Tyler, **$51,656**, est. $85,000. CD 9/14.

BRIDGES

BIDS ASKED

Ont., Toronto—B. A. 10/17—Canadian National Rys., E. R. Logie, ch. engr., 436 Union Station, Toronto, and City, City Hall, subway, railway underpass at Jones and Myrtle Aves., incl. removal street pavements, excav., constr. rein.-con. abutments, retaining walls, elevated sidewalks, center pier. Plans deposit $50. CD 4/21/49.

† **Alaska**—B. A. 10/25—Alaska Road Comn., Dpt. Interior, Juneau, 170 ft. bridge over Eklutna River on Glenn Hy. with one 50 and one 35 ft. I-beam approaches; bridge with three 44 ft. I-beams over Noyes slough, Fairbanks; 70 ft. I-beam span over Sinona River on Tok Rd.; 50 ft. I-beam bridge over Tulsona River on Tok Rd.; 80 ft. I-beam span over Gulkana River on Richardson Hy. Plans deposit $10. A. F. Ghiglione, ch. engr.

LOW BIDDERS

D. C., Wash.—D. C. Hy. Dpt., District Bldg., Sept. 27, bridge under Baltimore & Ohio R.R. tracks on Kansas Ave., from Whittington & Brown, 805 G St. N.W., **$220,282**. CD 9/8.

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston, Sept. 19, steel grid deck, Fore River Bridge, Quincy-Weymouth, from F. W. Byron, 89 Lincoln St., Dedham, (B) **$110,120**. CD 9/7.

North Carolina—State Hy. & P. Wks. Comn., Raleigh, Sept. 26, traffic bound macad. concrete curb and gutter and structures 0.45 mi. bridge and approaches over South Fork Catawba River in Cramerton, Proj. BS 9-7-81-46, Gaston Co., and wid'n. steel truss over channel and 2 approach spans at each end, bridge over Roanoke River on U.S. 258 north of Scotland Neck, Proj. 1383, F-567 (6), Halifax and Northampton Counties from Harvey H. Stewart, Box 1932, Charlotte, **$146,948**, est. $125,000-$150,000 and **$186,436**, est. $150,000-$175,000 respectively***wid'n. bridges over Crabtree Creek and Neuse River and rebuilding bridge over Buffalo Creek between Raleigh and Wendell, U.S. 64, Proj. BS-4-6-38-174, Wake Co., from McMeekin Constr. Co., Box 352, Cheraw, S. C. **121,347**, est. $100,000-$125,000***2 bridges on county road at east city limits of Winston-Salem near Reynolds Park, wid'n bridge over Stewarts Creek on county road between Winston-Salem and Lewisville, Proj. 8-9-71-219, Forsyth Co., from Wannamaker & Wells, Box 542, Orangeburg, S. C., **$78,271**, est. $50,000-$75,000***bridge over Waccamaw River on county road between Pireway and Regan, Proj. 3-9-28-213, 212, Brunswick and Columbus Counties, from Warren J. Mann, c/o Carolina Hotel, Raleigh, **$56,631**, est. $25,000-$50,000***structures from point on U.S. 220 at end of S.P. 535, northwest to point just north of intersection of U.S. 220 and U.S. 158, Proj. 5437, F-625 (5), Guilford Co., from F. A. Triplett, Chester, S. C. **$70,602**, est. $50,000-$75,000.

STREETS AND ROADS

LOW BIDDERS

Calif., Palo Alto—City, City Hall, Sept. 25, imprv. Embarcadero St. et al, Spec. 50-5, from Leo F. Piazza, 175 S. Montgomery St., San Jose, **$104,399**. CD 9/12.

▲ **North Carolina**—State Hy. & Pb. Wks. Comn., Raleigh, Sept. 26, from J. F. Cleckley & Co., Box 209, Orangeburg, S. C., sand asph. surf. course 17.9 mi. from junction with N. C. 118, approx. 1.8 mi. east of Pitt Co. line, then along existing county road in an easterly direction to Swift Creek bridge at Vanceboro, from junction with N. C. 118 approx. 2.5 mi. west of N. C. 43 then along existing county road to junction 0.8 mi. south of Swift Creek bridge at Vanceboro, Prof. 2-9-17-204, Craven Co. **$94,882**, est. $100,000-$125,000; b. conc. surf. course 22.8 mi. from St. Paul toward Tolarsville via Pleasant Grove Church to U. S. 301, roads north of St. Paul and east of U. S. 301, from Saddle Tree Church toward St. Paul, from N. C. 211 at Raft Swamp Church via Moss Neck, Godwin Ave. and N. C. 211 in Lumberton, Proj. 6-9-57-288, Code 5900-631, Robeson Co., **$85,017**, est. $75,000-$100,000***sand asph. or b. conc. surf. course 17.7 mi. county road from Shannon to Hoke Co. line, county road east of N. C. 20 between Rex and Lumber Bridge, county road between Rex, Rennert and Lumber Bridge, from N. C. 71, 1 mi. west of Red Springs to Hoke Co. line, McLeod Rd. from N. C. 211 at Red Springs south, school drives and streets in Red Springs Proj. 6-9-57-227 BS 6-7-57-46, Code 5900-647, Robeson Co., **$62,159**, est. $50,000-$75,000

from Zeigler-Cline Constr. Co., Box 386, Fayetteville, sand asph. or b. conc. 14.6 mi. from Sampson Co. line at South River via Ammon to Cumberland Co. line, Proj. 3-9-27-216, Bladen Co., **$57,438**, est. $50,000-$75,000; b. conc. binder and surf. course 27.56 mi. U. S. 301 from Cumberland Co. line to intersection with U. S. 74, 5 mi. south of Lumberton, Proj. BS 6-6-57-175, Robeson Co., **$130,416**, est. $150,000-$175,000***from Barrus Constr. Co., Box 561, Kinston, sand asph. or b. conc. surf. course 9.78 mi. from point on Jones Co. line, northwest to point on U. S. 70, approx. 4 mi. southeast of Kinston, from point on county road, approx. 1.7 mi. southwest of N. C. 12, east via Loftins Crossroads to point approx. 2.8 mi. south of U. S. 70, from E. Highland Ave. in Kinston, northwest to U. S. 258, Proj. 2-9-21-215, 2-9-21-219, Lenoir Co., **$101,571**, est. $100,000-$125,000; sand asph. surf course 9.8 mi. from point on existing county road at Mays Store, thence via Jenny Lind and Hickory Grove Church to junction with U. S. 70, 1.2 mi. west of Falling Creek, from point on existing county road east of Jenny Lind, thence south 1.7 mi. to intersection with county road from point on county road at Mays Store, north to intersection with U. S. 70 at Baltimore, Proj. 2-9-21-212, Lenoir Co., **$56,879**, est. $50,000-$75,000

from Shepherd Constr. Co. Inc., Box 3299, State F, Atlanta, Ga., sand asph. or b. conc. surf. course 9.1 mi. from Wayne Co. line along existing county road in an easterly direction to junction with N. C. 58, 3.8 mi. west of Snow Hill, from Wayne Co. line southeast 1.6 mi. to junction with first part, from Wayne Co. line along existing county road in an easterly direction through Lindell to junction with N. C. 58 2 mi. south of Wilson Co. line, Proj. 2-9-18-208, 2-9-18-213, Greene Co., **$56,187**, est. $50,000-$75,000; b. conc. surf. course 27.1 mi. surfacing 9 sections of county roads and streets in Mount Olive, Seven Springs and Eureka Proj. 4-9-39-212, 216, 218; 5900-411, 428, 446, Wayne Co., **$91,534**, est. $125,000-$150,000***from Ballenger Paving Co., Box 1046, Greenville, S. C., b conc. binder and surf course 8.2 mi. from intersection of U. S. 70 and N. C. 80 to E. city limits of Old Fort, Proj. BS 9-6-84-128, McDowell Co., **$85,905**, est. $100,000-$125,000***from Lavender Bros., Earl, STBC, sand asph. or b. conc. base and b. conc. surf. course 8.25 mi. N. C. 77, from point on King St. in Hamlet near east city limits, northeast to U. S. 1 approx. 1 mi. southwest of Marston, Proj. BS 7-6-63-141, Richmond Co., **$172,504**, est. $200,000-$225,000

from Dickerson, Inc., Box 448, Monroe, sand asph. surf. course 10.8 mi. from junction with N. C. 30, 0.6 mi. east of N. C. 11, thence along existing county road in an easterly direction to junction with N. C. 30 near Pactolus and from junction with N. C. 30 in Pactolus thence along existing county road in an easterly direction to junction with N. C. 33, Proj. 2-9-24-213, Pitt Co., **$64,699**, est. $50,000-$75,000 ***from Suber & Co. Inc., Whitmire, S. C., traffic bound macad., bit. surf. tr. or b. conc. surf. 6.58 mi. from point approx. 62 ft. west of west end of bridge over Rocky Creek, end of Proj. 9-100, east to Alexander-Iredell Co. line, thence southeast to Pilgrim Church Rd. then northeast to N. C. 115, Proj. 9-101, S-345 (1), Alexander and Iredell Counties, **$135,284**, est. $150,000-$175,000***from Wilson Constr. Co., Box 603, Salisbury, furnishing, hauling, dumping on road, traffic bound macad base course 10.7 mi. Smoot Rd. from McCubbins Crossroads north to South River Church Rd., Chenault Rd. from Third Creek Church to Moores Chappel, thence on Cool Springs Rd. 1.1 mi. to Iredell Co. line, 2 streets in Cleveland, Proj. 7-9-64-218, Code 5906-708, Rowan Co. **$52,958**, est. $50,000-$75,000

from A. C. Shearer Co., Box 128, Chapel Hill, added material or traffic bound macad. or PCSBC and bit. surf. tr. or sand asph. or b. conc. surf. course 4.21 mi. Red Mountain Rd. from end of bit. surf. tr. near Rougemont east to Copley's Corner, Proj. 5-203, S-118 (3), Durham Co. **$60,955**, est. $75,000-$100,000***from Kiker & Yount, Box 330, Reidsville, traffic bound macad., b. conc. binder and surf. course 6.95 mi. U. S. 220 at end of S. P. 5353, northwest to a point just north of intersection of U. S. 200 and U. S. 158, Proj. 5437, F-625 (5), Guilford Co. **$319,541**, est. $400,000-$500,000*** from W. E. Graham & Sons, Cleveland, N. C., traffic

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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JOINT FILLER
Insulates against
HEAT LOSS!

Specify KORK-PAK Joint Filler for use between floor slabs and footings in basementless houses and structures on grade and get the extra KORK-PAK insulating feature as well as a waterproof, resilient, non-extruding filler that will keep the joint effectively filled at all times.

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bound macad., bit. surf. tr. and structures 3.52 mi. N. C. 18, from point approx 0.4 mi. west of Whitehead, northeast on N. C. 18 to Sparta, Proj. 7094, F-288 (8), Alleghany Co., **$65,008**, est. $50,000-$75,000***from Knight, Inc., Box 1356, Reidsville, traffic bound macad., bit. surf. tr. or b. conc. surf. 5.44 mi. from end of 18 ft. bit. surf. tr. on county road approx. 5 mi. north of Hiddenite, northeast 5.44 mi. Proj. 9-100, S-308 (1), Alexander Co., **$97,615**, est. $75,000-$100,000***from McMeekin Constr. Co., Box 352, Cheraw, traffic bound macad. and structures 0.18 mi. relocation of N. C. 180 over First Broad River at Lawndale, Proj. 8256 S-327 (8), BS 9-6-80-140, Cleveland Co., **$113,761**, est. $100,000-$125,000***cancelled bids to have been opened Sept. 26, sand asph. or b. conc. surf. course 11.28 mi. from N. C. 101 at Harlowe, northeast to Adams Creek, Proj. 2-9-17-205, 2-9-16-214, Craven and Carteret Counties, est. **$50,000-$75,000.** CD 9/19.

CONTRACTS AWARDED

Ia., Sioux City—Woodbury Co., Sioux City, road grading, to Booth & Olson, 520 Insurance Exchange Bldg., **$126,997.** Bids 8/28.

Ky., Louisville—City, City Hall, wid'n. 2 St. from Main to Kentucky Sts., and 3 St. from Main St. to Broadway, to Geo. M. Eady Co., 340 Byrne St., **$179,389.** Est. approx. $200,000. Bids 9/7, awarded 9/15.

Mich., Bay City—City, R. K. McGillivray, dir. Dpt. P. Wks., bit. macad. surf. various streets, to Midland Contg. Co., Bay City, **$92,804.** Edward Wilhelm, City Hall, engr. CD 8/25.

Okla., Tulsa—City, City Hall, c. conc. parts of 17, 18, 19 and 20 Sts., to C. L. Cunningham, Tri-State Industrial Bldg., Zone 2, **$155,426.** Est. $162,000. W. R. Wooten, city engr. CD 6/1.

▲ **Pennsylvania**—State Hy. Dpt., Harrisburg, construct divided hy. consisting of rein.-con. pavement 22 ft. and variable in width on each side of earth divisor area 20 ft. and variable in width, incl. 6 rein.-con. structures, c.-conc. pavement 40 ft. and variable in width, crushed aggregate base with bit. surf. variable 34 to 54 ft. wide, and shoulder grading, wid'n. existing pavement with crushed aggregate base variable 2 to 37 ft. wide bit. surf. existing pavement and new base variable 20 to 54 ft. wide, 28,177 ft. LR. 246 (R-1A), T. R. U. S. 19, in Zelienpole Boro—south, also north and south of Allegheny-Butler Co. line, Allegheny and Butler Counties, to Allegheny Asphalt & Paving Co., Inc., 801 Bingham St., Pittsburgh, Zone 3, **$1,713,992.** Bids 9/15, awarded 9/26. CD 9/20, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Pa., Phila.**—B.A. 11/1—U. S. Eng., 121 N. Broad St., Zone 1, maintenance dredging approx. 226,000 cu. yds. material in Schuylkill River from Passyunk Avenue bridge to B. & O. R. R. Bridge, Inv. CIVENG 36-109-51-24.

Tex., Houston—Bids Asked—S. N. Adams & Co., 4001 Westheimer Rd., earthwork, site development, in Oak Estates sub-division, on 75 lots and 12 acre tract out of Old Gun Club. $35,000.

SOON LETS CONTRACT

Man., Winnipeg—Greater Winnipeg Diking Bd., 221 Osborne St. N., Victoria Crescent Dike in St. Vital, to R. Swail Coal & Cartage Ltd., Wall and Wellington Sts. Approx. **$300,000.** CD 10/14/48.

AIRPORTS

BIDS ASKED

Tex., Luling—ADMINISTRATION BLDG.—B. A. 10/25—City, hollow tile, limestone walls Memorial Airport Administration Bldg., concrete slab fdn., water supply well. Approx. $60,000. Plans deposit $20. DeHaven Pitts, Travis Bldg., San Antonio, and Wm. Orrison, 214 Travis Bldg., San Antonio, engrs.

LOW BIDDERS

Tex., Crystal City—AIRPORT—City, Sept. 25, airport, from Schwope Bros., 6633 W. Commerce St., San Antonio, **$105,672.** Est. $90,000. CD 9/13.

CONTRACTS AWARDED

Neb., Omaha—PARKING APRONS—City, City Hall, 18 and Farnam Sts., parking apron at Municipal Airport, to Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., **$91,934.** CD 11/13/46.

PUBLIC BUILDINGS

BIDS ASKED

Mo., Eureka—SCHOOLS—B.A. 10/17—Reorganized School Dist. R 6, of St. Louis Co. Bd. Educ., Robert T. Geggie, secy., new shop on high school site, in Eureka and Vandover School addn., alterations, Bonsack & Pearce, Inc., 308 N. 6 St., St. Louis, Zone 1, archt.; Ellisville School addn., alterations and new school in Pond. Wischmeyer & Lorenz, 911 Locust St. St. Louis, Zone 1, archts. CD 6/5.

W. Va., Moundsville—GYMNASIUM, etc.—B.A. 10/18—Bd. Educ., Marshall Co., Moundsville, 1 story, bsmnt., 112x211 ft., brick, block gymnasium and industrial arts bldg. addn. $250,000. Nay & Shaw, 303 Fidelity Bldg., Wheeling, archts. CD 2/23.

Conn., Falls Village—SCHOOL, etc.—B.A. 10/19—Regional High School Comn., Col. J. C. Dexter, chn., Deep River, 1 and 2 story, brick, steel regional high school addn., alterations. $250,000. Plans deposit $30. Ernst F. Sibley, 7 S. Main St., Hartford, archt. CD 1/23.

Tex., Atlanta—HIGH SCHOOL—B.A. 10/24—Atlanta Independent School Dist., Atlanta, high school. $250,000. Stanley Brown, 1905 N. Harwood St., Dallas, archt. CD 8/8.

Mass., Lunenburg—SCHOOL—B.A. 10/25—Town, Bldg., Comn., Arthur E. Calvin, chn., Town Hall, 2 story, bsmnt., 100x200 ft. main bldg., 35x130 ft. 2 wing school, $325,000. Plans deposit $50, S. W. Haynes & Assocs., 336 Main St., Fitchburg, archts. CD 1/13.

Ill., Urbana—SCHOOL—B.A. 10/31—Urbana School Bd., Southeast Elementary Grade School, $250,000. Smith, Kratz & Strong, Urbana, archts.

▲ **Mich., Kalamazoo**—COLLEGE—B.A. 10/31—State, A. N. Langius, dir. State Bldg. Dpt., 115 State Office Bldg., Lansing, 3 story, brick, steel 100,000 sq. ft. Western Michigan College of Education, $1,300,000, Ralph R. Calder, 1212 Kales Bldg., Detroit, Zone 26, archt. CD 1/22/46.

LOW BIDDERS

▲† **D. C., Wash.**—BUILDING—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., Sept. 27, 4 story, part bsmnt., concrete, limestone, with face brick in courts, composition roof with part tile promenade Red Cross District of Columbia Chapter House, 20 and E Sts. N.W., from George Hyman Constr. Co., 1010 Vermont Ave. N.W. **$1,935,939.** CD 9/15.

Mass., Manchester—SCHOOL—Town, School Comn., Sept. 21, school, Ayers Farm, Summer and Lincoln Sts., from Walsh Constr. Co., Inc., 199 Webb St., Salem, **$785,682.** CD 9/1.

▲ **N. C., Raleigh**—HOUSING—Raleigh Housing Auth., B. F. Brown, chn., Raleigh, rejected bids Aug. 22, 54 negro units, Chavis Heights, 86 white units, Halifax Court. L. B. **$1,159,850.** Will re-advertise. CD 8/29, under LB.

Pa., Dixmont—ADMISSION—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 27, general contract admission bldg. at Dixmont State Hospital, from Allegheny Building Co., 899 Bingham St., Pittsburgh. **$626,900.** CD 9/6.

Pa., Phila.—KITCHEN, etc.—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 27, general contract renovating male kitchen and cafeteria at Phila. (Byberry) State Hospital, from Wark & Co., 1920 Sansom St., **$782,000.** Est. $700,000. CD 9/13.

▲ **R. I., Providence**—LIBRARY—City, City Hall, Sept. 25, library addn. Washington, Empire and Fountain Sts., from Gilbane Building Co., 90 Calverly St., **$2,143,892.** CD 9/13.

CONTRACTS AWARDED

Calif., Palo Alto—SCHOOLS—Pala Alto City Unified School Dist., Palo Alto, 2 elementary schools, School A in Green Gable Dist. and School B at Diff Rd. and Waverly, to Earl W. Heple, 494 Delmas Ave., San Jose. **$509,500.** Bids 8/31. CD 9/8, under LB.

Conn., Torrington—SCHOOL—City, City Hall, school, to Bonvicini Bldg. Co., New Harwinton Rd. **$636,963.** Bids 8/31, awarded 9/22. CD 9/19, under LB.

† **Idaho, Arco**—REPAIR, etc.—Idaho Operations Office, U. S. Atomic Energy Comn., Idaho Falls, 140x146 ft. equipment repair bldg. and 36x80 ft. communications bldg. with refuse burner and utilities at reactor testing station, to C. B. Lauch Constr. Co., 435 Ada St., Boise. **$543,931.** Bids 9/12.

Mass., Grafton—SCHOOL—Town, School Dpt., Grafton, Junior-Senior High School, to M. J. Dyer & Co., 58 Front St., Worcester. **$628,980.** Bids 8/29, awarded 9/16. CD 9/6.

▲ **Minn., St. Paul**—HOUSING—St. Paul Housing & Development Auth., A. Karon, exec. dir., E. 702 First National Bank Bldg., John J. McDounough Housing at Wheelock Parkway and Jackson St., to W. W. McGee Co., 1397 Laurel Ave. **$5,142,000.** Bids 9/20. CD 9/27, under LB.

▲ **N. J., Hoboken**—HOUSING—Housing Auth., M. Edward DeFacio, exec. dir., City Hall, Andrew Jackson Gardens and Christopher Columbus Gardens, to Melwood Constr. Corp., 507 Fifth Ave., New York, N. Y. **$938,150.** Bids 8/22, awarded 9/22. CD 9/27, under LB.

Tex., Henderson—HIGH SCHOOL—Henderson Independent School Dist., Henderson, general contract high school, to Stroud Bros., Joinerville. **$496,496.** Bids 9/1. CD 9/12, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Colo., Denver—HOSPITAL—B.A. 11/1—St. Lukes Hospital, 19 and Pearl Sts., 5 story, T-shaped, 199x56 ft., and 56x97 ft. base St. Lukes' Hospital addn., at E. 18 Ave. and Pearl St. Approx. $250,000. Roland L. Linder, Insurance Bldg., archt. CD 5/5/48.

SOON LETS CONTRACT

▲ **Mo., Kansas City**—HOSPITAL—St. Luke's Episcopal Hospital, c/o Supt., 44 and Wornall Rd., Zone 2, soon lets contract new 5 story hospital wing, $2,000,000. Keene & Simpson, 15 W. 10 St., Zone 6, archts. CD 7/14.

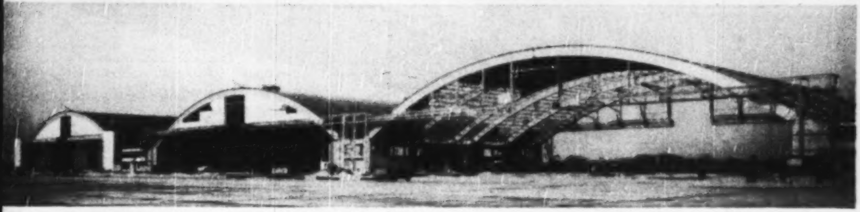
Wyo., Powell—HOSPITAL—B.A. 10/10—Dist. 1, War-Memorial Hospital, E. C. Roney, Park County, Powell, soon lets contract 31-bed hospital $330,000. Goodrich & Wilking, 326 E. 2 St., Casper, archts. and engrs. CD 8/25.

LOW BIDDERS

Mass., Brighton—RETAIL MARKET—Stop & Shop, Inc., 393 D. St., South Boston, Sept. 15, retail market, Corey Rd. and Washington St., from Canter Constr. Co., 140 Westbourne Terrace, Brookline, **$315,678.** D. J. Abrahams & Assoc., 651 Boylston St., Boston, archts.

(Continued on page 85)

HUGE STEEL-ARCH HANGARS *go up fast!*



▲ Principal roof members are curved, riveted plate girders. Pinned at supports and crown, they have a constant depth, back to back of flange angles of 5 ft. 7 in. and rise 49 ft. 11 in. to provide a clear height at center of 75 ft.

◀ Interconnected by 2-story steel frame lean-tos ranging in width from 39 to 103 ft., the hangars form a building 1,148 ft. long and 219 ft. wide. Each hangar provides a 300 ft. clear floor space.

302′ Steel-Arch Spans SIMPLIFY ERECTION . . .

PROVE MOST ECONOMICAL TYPE OF CONSTRUCTION

PROJECT: Three hangars and interconnecting lean-tos at New York International Airport, Queens, New York City.

DESIGNED BY: Port of New York Authority, Roberts and Schaefer Company, Consulting Engineers. Lorimer and Rose, Associate Architects.

GENERAL CONTRACTOR: Stock Construction Corporation.

STRUCTURAL STEEL: 3,600 Tons. Fabricated and erected by American Bridge Company.

Erected in 13 months (complete with heating, fire-alarm and lighting systems) the three giant, 300′-wide, 219′-long hangars with interconnecting 2-story lean-tos have set a record for this type of construction—both as to length of spans and speed of construction.

Erected in four sections, the 302′-steel arches are pinned at the supports and crown to provide a clear height at the center of 75 ft. Each hangar is large enough to accommodate 6 Douglas DC-6 transports or four double-deck Boeing Stratocruisers. In addition, parking aprons on both sides of the building can take 15 aircraft of the type having a turning circle of 175 ft., or 19 of the smaller type having a turning circle of 150 ft.

The decision to use long panels between solid web steel arches for this important project was made after studied consideration of other types of construction materials. And again steel proved most economical by meeting all comers in competitive bids.

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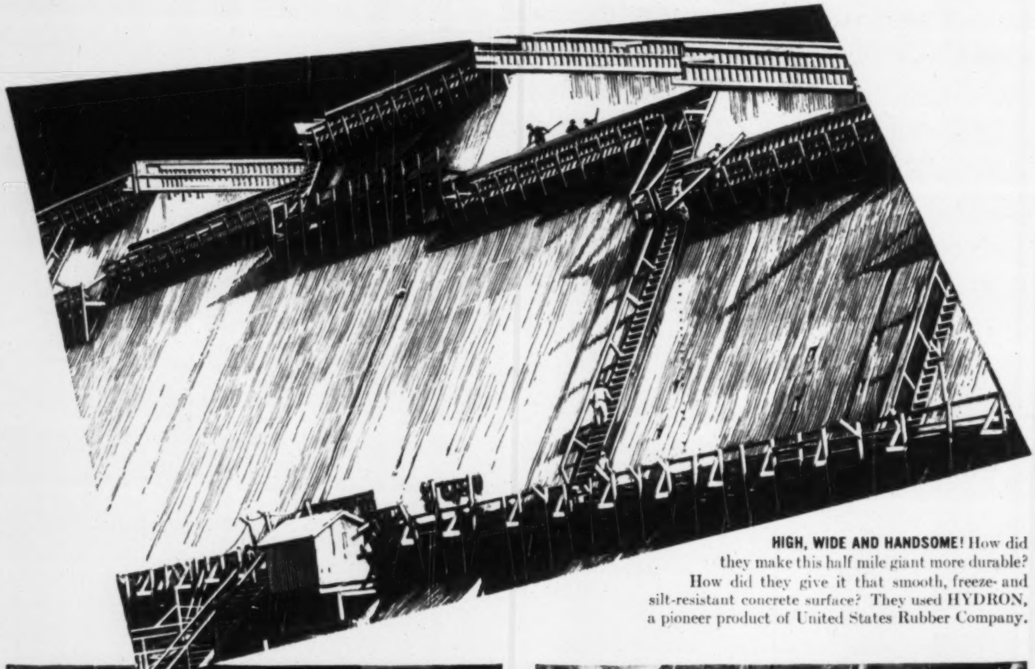
Giant Norfork Dam built with Hydron Form Linings for stronger, pit-free concrete surfaces



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LEARN THE SECRET of Hydron! It's a flexible absorptive form lining only 0.08 of an inch thick. It absorbs excess water and eliminates trapped air. Concrete laid against Hydron is smoother—lasts longer.

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(Continued from page 82)

Mass., Woburn—HOSPITAL—Choate Memorial Hospital, 21 Warren Ave., Sept. 20, hospital wing, from D. Cunningham Constr. Co., Inc., 20 Kilby St., Boston, **$366,730**. CD 9/13.

Mich., Dowagiac—HOSPITAL—Sisters of St. Joseph, Lee Memorial Hospital, 513 Main St., 3 story, bsmnt., brick, steel hospital, Main St., from Miller-Davis Co., Kalamazoo, **$654,000**. CD 9/8.

S. C., Greenwood—APARTMENT—Brookside Court, Inc., c/o H. Reid Hearn, Jr., archt., 1306 Main St., Columbia, apartment development, from Taylor Constr. Co., Columbia, **$294,400**.

CONTRACTS AWARDED

Fla., Jacksonville — CAFETERIA — Morrisons Cafeteria Co., 6 St. Joseph St., Mobile, Ala., cafeteria and modern cafeteria equip., to S. S. Jacobs Co., Hilderbrandt Bldg., Jacksonville, Zone 1, **$410,000**. Awarded 9/26. Marsh & Saxelby, Hilderbrandt Bldg., Zone 1, archts.

Ill., Chicago—SCHOOL—Epheta School for Deaf, Pulaski and Barry Sts., Zone 41, 2 story, bsmnt., School for Deaf, to Ford & Phillips Co., 559 W. Van Buren St., Zone 7 **$350,000**. Awarded 9/22. Wm. J. Ryan, 35 E. Wacker Dr., Zone 1, archt. CD 6/23.

Ind., Fort Wayne—ADMINISTRATION, etc.—St. Vincent's Orphan Home, 2000 Wells St., general contract administration and 2 dormitories at St. Vincents Villa, Catholic Orphanage, to Schinnerer & Truemper, 3630 Bowser St. Approx. **$550,000**. A. M. Strauss, Strauss Bldg., archt.

Mich., Detroit—SCHOOL—Fathers of St. Basil, Detroit, 3 story, brick, steel Catholic High School, Outer Dr. and Hubbard St., to Darin & Armstrong, Inc., 2041 Fenkel St. Approx. **$500,000**. Bids 9/8. CD 9/5.

Mich., Greenville—HOSPITAL—United Memorial Hospital, Bd. Trustees, Greenville, general contract 3 story, brick, steel hospital, to Strom & Strom, Inc., 1770 6 St., Muskegon, **$658,685**. (Correction—contractor). CD 9/1, under Ch.

N. Y., Valhalla—CONVALESCENT HOME—Blythedale Home, Bradhurst St., convalescent home alterations, addns., to William A. Berbusse, Jr. Inc., 101 Park Ave., New York, Zone 17. Approx. **$300,000**. Bids 8/3. CD 7/26.

▲ **Ore., Portland**—HOSPITAL WING—Good Samaritan Hospital, 2266 N.W. Marshall St., rein.-con. hospital wing, to Ross B. Hammond Co., 1241 N. Williams St., **$1,891,810**. CD 9/29, under LB.

Tex., Houston—DWELLINGS—Carolina Gardens Development Co., Inc., 2401 Blodgett St., 75 addnl. dwellings for Negroes, west of exten. of Scott Rd. east of Almeda Rd. Owner builds. **$515,000**. CD 7/27.

Tex., Houston—DWELLINGS—Garden Oaks Realty & Building Co., 4331 Ella Blvd. 50 dwellings. Owner builds. Approx. **$510,000**. CD 7/27.

Tex., Houston—DWELLINGS—N. H. Mitchell, E. J. Gracey & Preston R. Plumb, 4550 Griggs Rd., 50 addnl. dwellings, Griggs Rd. near Telephone Rd., own forces. **$375,000**. CD 12/1/49.

Tex., Houston—DWELLINGS—Miles Strickland, 2nd Natl. Bank Bldg., San Antonio, 75 dwellings, between Federal Rd. and Woodlawn acres, own forces. **$475,000**. CD 5/2.

Que., Hull—DWELLING UNITS—Wrightville Realty Co., Wrightville, 102 dwelling units, own forces. Approx. **$700,000**.

Que., Quebec City—Y. M. C. A. BLDG.—Y. M. C. A., 13 Turnbull St., Y. M. C. A. Bldg., St. Cyrille St., to Francois Jobin, Inc., Industrial Center No. 5. Approx. **$275,000**. F. A. Walker, 2 Belvedere St., archt. CD 8/23.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ia., Cedar Rapids—PLANT—Bids Asked—Sanitary Farm Dairies of Iowa, 133 F Ave. N.W., dairy plant addn. $80,000. Norman Hatton, 531 Higley Bldg., archt.

▲ **Tex., Colorado City**—POWER PLANT—Bids Asked—Texas Electric Service Co., Colorado City, doubling capacity electric power plant (incl. 40,000 volt steam-electric generating unit). $1,000,000. J. B. Thomas, Electric Bldg., Fort Worth, engr. CD 8/31.

SOON LETS CONTRACT

Ia., Sioux City—PLANT—Swift & Co., 4115 S. Packers St., Chicago, Ill., soon lets contract branch plant addn. $250,000.

Ill., Chicago—FACTORY—Continental Scale Co., 57 and Claremount Sts., Zone 36, soon lets contract factory and office addn. $100,000. Engineering Systems, Inc., 21 N Lasalle St., Chicago, Zone 1, archt.

Mass., Dorchester — MANUFACTURING — Recording & Statistical Corp., 183 Essex St., Boston, soon lets contract, 2 story, rein. con. mfg. office bldg., Old Colony Parkway, $500,000. Maurice A. Reidy, 101 Tremont St., Boston, engr. CD 9/13.

Tex., Laredo—POWER UNIT—Central Power & Light Co., Chaparral St., Corpus Christi, soon lets contract, electrical auxiliary power unit—all electric installations. $80,000.

LOW BIDDERS

Fla., Tallahassee—TERMINAL—Modern Coach Corp., c/o James A. Stripling & Assocs., archts., Child Bldg., rejected bids Sept. 22, bus terminal. CD 9/12.

CONTRACTS AWARDED

Fla., St. Cloud—PLANT—Orlando Livestock Co., Orlando, dairy plant near Deer Park. Owner builds. **$150,000**. Ralph Liss, c/o owner, archt.

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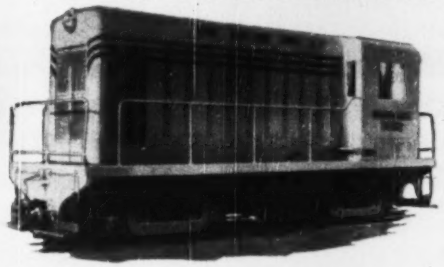

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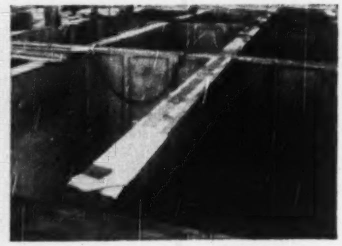

PRECIPITATORS, BREECHINGS, STACKS AND HOPPERS ALL LINED WITH "GUNITE" BY CEMENT GUN CO.

Photos above show units number 1 and 2 of the new 150 m.w. turbogenerator steam electric station of the Pennsylvania Power and Light Company at Sunbury, Pa.

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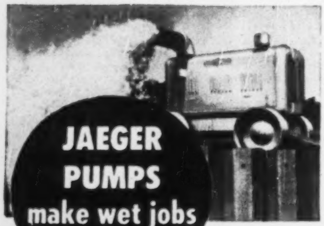

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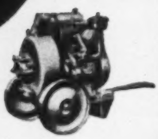

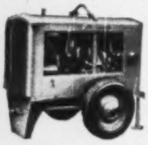

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	Per 100	1000 Lots Per 100
12"	$7.15	$6.50
15"	8.80	8.00
18"	9.60	8.70
24"	11.50	10.45
36"	16.50	15.05

GRADE STAKES
¾ x 1-¾

12"	$5.60	$5.10
15"	5.75	5.20
18"	5.80	5.25
24"	6.90	6.25
36"	9.70	8.80

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▲ Ill., **Broadview**—PARTS DEPOT—International Harvester Co., 17 Ave. and Illinois Central R.R., 1 story, 1,200,000 sq. ft., steel, brick concrete parts depot, to Rangnar Benson, Inc., 4744 W. Rice St., Chicago, Zone 51, **$8,000,000.** Awarded 9/27. CD 8/17.

Ill., **Chicago**—PLANT—Poole Bros., Inc., Clark and Harrison Sts., Zone 5, 1 story, bsmnt., printing plant addn., to Dahl Stedman Co., 7 S. Dearborn St., Zone 3, **$80,000.** Awarded 9/20. J. L. McConnell & Assocs., 53 W. Jackson St., Zone 4, archts.

▲ Ill., **Melrose Park**—PLANT—Sawyer Biscuit Co., Div. United Biscuit Co., North and 25 Aves., 1 story, part bsmnt., 350x1,400 ft., steel, concrete, brick baking plant, to Geo. A. Fuller Co., 111 W. Washington St., Chicago, Zone 2. Approx. **$7,500,000.** CD 6/1.

Ill., **Morton Grove**—PLANT—Bell & Gossett, 8500 Austin Ave., one 1 story 100x180 ft., 18,000 sq. ft., one story, 100x180 ft., 18,000 sq. ft., one 100x1,500 ft., 50,000 sq. ft., steel, concrete, brick plant addns., to City Wide Builders, 5400 N. Elston St., Chicago, Zone 30, **$525,000.** Awarded 9/25. CD 9/22.

Ill., **St. Charles**—FACTORY—St. Charles Mfg. Co., Route 63, 60,000 sq. ft., steel framing, brick, concrete factory, to Ragnar Benson, Inc., 4744 W. Rice St., Chicago, Zone 51. Approx. **$765,000.** Awarded 9/22. CD 8/11.

▲ Ia., **Des Moines**—PLANT, etc.—Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, O., industrial plant and warehouse, to National Industrial Constr. Co. Affiliated with Morrison-Knudson Co., 319 Broadway, Boise, Idaho, **$5,000,000.** CD 6/6.

▲ Md., **Landover** — DISTRIBUTION CENTER — Safeway Stores, 4 and Jackson Sts., Oakland, Calif., distribution center, incl. 463x542 ft. grocery warehouse, 341x433 ft. produce warehouse, 102x216 ft. mixed loads warehouse, 127x201 ft. bakery goods warehouse, 127x251 ft. milk products warehouse, 127x236 ft. frozen foods warehouse, 360x387 ft. meat warehouse, all one story, structural steel, brick, concrete floors, Sheriff Rd., to Turner Constr. Co. 420 Lexington Ave., New York 17, N. Y., **$4,000,000,** Alexander D. Crosett, 27 William St., New York, N. Y., engrs.

▲ N. J., **Kearny**—DISTRIBUTION CENTER—Safeway Stores, Inc., 4 and Jackson Sts., Oakland, Calif., 664,000 sq. ft. food distribution center, on 38-acre site on Pennsylvania Ave., adjacent to tracks of Pennsylvania R.R., to Turner Constr. Co., 420 Lexington Ave., New York, 17, N. Y. Est. **$3,000,000.** Alexander D. Crosett, 27 William St., New York, N. Y., engr.

▲ Tex., **Houston**—PLANT, etc.—Schlumberger Well Surveying Corp., 2720 Leeland St., masonry, steel, concrete type main plant, Group 1, masonry steel, concrete warehouse, masonry steel, concrete storage garage; Group 2, masonry, steel, concrete warehouse and maintenance shop on Freeway near Telephone Rd., to Telepsen Constr. Co., 1710 Telephone St., **$2,000,000.** Walter Kidde Constructors, Inc., 140 Cedar St., New York, N. Y., engr.

Utah, **Provo**—COIL—Geneva Steel Co., Geneva, excavation and fdns. coil bldg. addn., making possible production of 100,000 tons hot rolled sheets annually, to F. H. McGraw & Co., 51 E. 42 St., New York, N. Y. R. H. Talbott, c/o owner, engr.

Wash., **Spokane**—GARAGE—Sandifur Motor Co., W 302 2 St., rein.-con. public garage, to Central Constr. Co., W 918 Mallon St., **$80,570.**

Ont., **Hamilton**—PLANT—Canadian Westinghouse Co., Ltd., 286 Sanford Ave., N, two 1 story bsmnt., 60x100 ft. steel, rein.-con. and 60x140 ft., structural steel, rein.-con. plant addns., to Frid Constr. Co., Ltd., 128 King St. East. Approx. **$116,000.** Awarded 9/26. Wm. R. Souter & Assocs., 914 Pigott Bldg., archts.

Ont., **Hamilton**—COKE OVENS—Dominion Foundries & Steel, Ltd., Depew St., coke ovens foundation, to Frid Constr. Co., Ltd., 128 King St. E. CD 2/15/49.

UNCLASSIFIED

BIDS ASKED

Minnesota—RURAL DISTRIBUTION LINES—B.A. 10/17—Rural Co-operative Power Assn., Maple Lake, 21 mi. rural distr. lines, conversion from 34.5 KV to 69 KV, incl. supply of labor, materials, equip. in Elk River. $50,000. Plans deposit $25. United Eng. Service, 600 Kasota Bldg., Minneapolis, engr. CD 1/26/49.

Ont., Toronto—SUBWAY CABLES and TUBING—B.A. 10/17—Toronto Transportation Comn., Yonge and Front Sts., traction power cables and electrical metallic tubing for construction rapid transit subway. CD 1/9/46.

† Arkansas—ELECTRICAL EQUIPMENT—B.A. 10/19—U. S. Eng., 300 Broadway, Little Rock, installation and wiring electrical equipment, White River Watershed, Bull Shoals Dam, White River, Serial No. CIVENG-03-050-51-16.

† S. C., Charleston—ELECTRICAL SYSTEM—B. A. 10/19—At office W. T. Eckberg, officer in Charge of Construction, P. O. Box 365, Naval Base Charleston, electrical sys. alterations, addns. to meet requirements of the Navy and National Electric Codes at Naval Reserve Training Center, NOY 23247, Spec. 25655. Plans deposit $5.

Tex., Austin—STEAM DISTRIBUTION SYSTEM etc.—B.A. 10/24—Board of Regents, University of Texas, steam and electrical distr. sys. $60,000. Plans deposit $25. Julian Montgomery, 602 West Ave., engr.

(Continued on page 89)

Olean Gravel Corporation

Saves $600.00

Per J&L Wire Rope Installation

J&L STEEL

This Sauerman excavator is dragging aggregate from the lake bottom 85 feet below the water level. The long service life of the J&L Wire Rope track line is saving Olean more than $600.00 every 10 months.

J&L Wire Rope Track Cables Last 4 Months Longer Than Any Other Brand Tried

Here's a report on J&L Wire Rope from the Olean Gravel Co. It's a story about results—results that can be measured in cash.

Olean Gravel Corporation reports that by using J&L Wire Rope for track cable on a Sauerman excavator more than $600.00 are saved per installation.

Olean has been dredging gravel from a glacial delta deposit near Machias, New York, for more than twenty years. Water level was reached long ago and at present the aggregate is being dragged to a depth of 85 feet below water level. The total load on the track cable is over six tons and it is under stress at a sharp angle when the bucket is on the lake bottom. It's a tough application.

Olean has tried four brands of wire rope. Average service life was six months. Then on June 27, 1947 the company installed its first J&L Wire Rope track cable. It wasn't till 11 operation months later that a second J&L wire rope had to be installed. This time the service record showed 9 operating months.

The cost of a track cable on this rig runs to more than $900.00. Since the J&L Wire Ropes lasted an average of 4 months longer than the best brand previously used, Olean saved more than $600.00 on each J&L wire rope installed.

In addition costs for labor and lost production when changing cables have been reduced 40% because of J&L Wire Rope's 4 months longer service life.

It's no wonder that Olean Gravel Corporation has standardized on J&L Wire Rope for tension lines, inhaul cable and various applications on clam shells at the operating site.

If J&L Wire Rope can save money for Olean Gravel Corporation, the chances are it can do a job for you, too. Why not write in for a copy of our handbook, "Wire Rope is a Machine"? It's written for the operating man and gives profitable information on J&L Wire Rope and its applications. Better still contact your nearest J&L Wire Rope representative.

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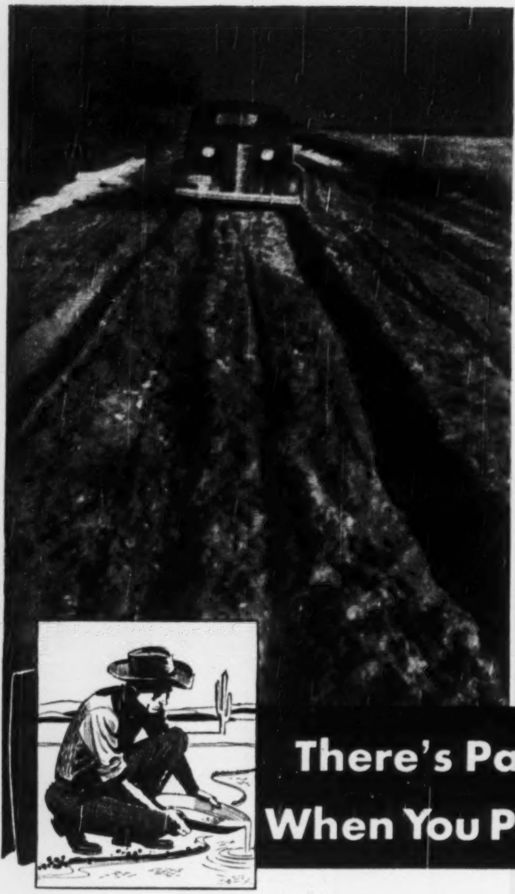

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A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

(Continued from page 86)

California—TURBINES—B.A. 10/26—Bureau Reclamation, Dpt. Interior, Bldg. 1- A, Denver Federal Center, Denver, Colo., turbines for Folsom Power Plant, Central Valley Proj., Spec. 3197. L. N. McClellan, ch. engr.

† **Washington**—SWITCH GEAR ASSEMBLY, etc.—B.A. 10/31—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center Denver Colo., furnish, del. f.o.b. cars shipping point or f.o.b. cars Winchester and Quincy, Wash., switchgear assembly, for removing and handling circuit breakers for Quincy Pumping Plant, Columbia Basin Proj., Spec. DS-3200 L. N. McClellan, ch. engr.

Tex., Colorado City—POWER LINES—Bids Asked—Texas Electric Service Co., Colorado City, power lines. $65,000. J. B. Thomas, Electric Bldg., Fort Worth, engr.

SOON LETS CONTRACT

Arkansas and Oklahoma—RURAL DISTRIBUTION LINES—Arkansas Valley Electric Co-operative Corp., Ozark, soon lets contract 231 mi. rural distr. lines, Crawford, Franklin, Johnson, Pope, Logan, Madison, Sebastian Counties in Ark. and LaFlore Co., Okla., $260,000. H. B. Gieb & Assoc., Texas Bank, Dallas, Tex., engrs. CD 8/23.

Tex., Dallas—MOTOR FREIGHT DOCK—Roadway Express, Inc., 3908 Benson St., soon lets contract, structural steel, brick, hollow tile motor freight dock, concrete slab fdn. $100,000. J. A. Perkins & Assoc., 2203½ Cedar Springs Rd., archts. CD 8/21.

LOW BIDDERS

▲ **Mass., Boston**—PIER, etc.—Port of Boston Auth., Commonwealth Pier 5, South Boston, Sept. 21, Contr. 8, constr. Pier 1, and Contr. 7, dredging, filling, demolition at site of Commonwealth Pier 1 and Boston and Albany Pier 2, East Boston, from Merritt-Chapman & Scott Corp., 79 Milk St., **$4,521,836** and **$466,700** respectively. CD 9/7.

N. C., Columbus—PRISON CAMP—State Hy. & P. Wks. Comn., Raleigh, Sept. 27, general contract prison camp, from Herman-Sipe Co., Inc., Conover, **$58,237**. CD 9/14.

R. I., Providence—TRANSIT SHED—City, City Hall, transit shed, Fields Point Municipal Wharf from Gilbane Building Co., 90 Calvery St., **$921,919**. Bids 9/5 rejected, L. B. **$1,489,916**. CD 9/14, under LB.

† **Washington**—CIRCUIT BREAKERS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Sept. 21, Schedule 1, two 230,000/196,000-volt circuit breakers for 230-kv left switchyard and Schedule 2 three 230,000/196,000-volt circuit breakers for 230-kv right switchyard, Grand Coulee Switchyards, Odair, Columbia Basin Proj., Spec. 3146, from Westinghouse Electric Corp., Gas & Electric Bldg., Denver, Colo., **$143,900** and **$314,850** respectively.

CONTRACTS AWARDED

† **Arizona**—CIRCUIT BREAKERS—Bureau Reclamation, Dpt. Interior, Bldg. 1- A, Denver Federal Center, Denver, Colo., Schedules 1 and 2, circuit breakers with spare parts for Phoenix sub-station, Davis Dam Proj., Spec. 3123, to Kelman Electric & Mfg. Co., 1650 Naud St., Los Angeles, Calif., **$214,614**. Bids 8/22, awarded 9/22. CD 7/13.

▲ **Calif., Long Beach**—TRANSIT SHED—City Harbor Bd., 1333 El Embaracedro, all construction except structural steel, cargo transit shed, to James I. Barnes Constr. Co., 504 S. Lafayette Park Pl., Los Angeles, **$895,800**; structural steel, to Pacific Iron & Steel Co., 11633 S. Alameda St., Los Angeles, **$580,434**. Est. $1,250,000. Bids 9/22. CD 8/29.

Conn., Middletown—PIPE and PEDESTRIAN TUNNEL—State, State Capitol, Hartford, pipe and pedestrian tunnel, B/A-I-764, to N. Benvenuti & Sons, 16 Elm St., New London, **$155,000**. CD 9/8, under LB.

Ill., Peoria—PARK—Peoria Park Bd., conservatory and service bldg. in Glen Oak Parks, to V. Jobst Sons, Lehmann Bldg., Peoria, **$119,268**, est. $130,000. The Austin Eng. Co., 115 S. Jefferson Ave., engr.

Iowa—RURAL DISTRIBUTION LINES—Southeast Iowa Co-operative Electric Assn., Mt. Pleasant, 82 mi. rural distr. lines, to Olds Electric Co., 316 Central Office Bldg., Davenport, **$95,850**. Bids 9/13. CD 8/23.

Miss., Carthage—NATURAL GAS SYSTEM—Town, natural gas sys., to Hyde Constr. Co., P.O. Box 385, Jackson, **$249,000**. Bids 9/22. CD 9/8.

Mo., Charleston—DRIVE-IN THEATER—Selmer Campbell, Charleston, 350 car drive in motion picture theater, separate contracts, **$50,000**.

Montana—RURAL DISTRIBUTION LINES, etc.—Glacier County Electric Co-operative, Inc., Court House, Cut Bank, 260 mi. rural distr. lines, 17 mi. power transmission lines, and 2 sub-stations, Glacier Co., to O'Neil Constr. Co., Havre, and Lewis Constr. Co., 903 10 Ave. N., Great Falls, **$477,096**. CD 7/13.

South Carolina—RURAL DISTRIBUTION LINES—Broad River Electric Co-operative, Inc., Gaffney, 140 mi. rural distr. lines, Cherokee, Union and Spartanburg Counties, to Alrich Electric Const. Co., Augusta, Ga., **$137,959**. Bids 9/26. CD 9/14.

† **Washington**—FENCING—Bureau Reclamation, Dpt. Interior, Ephrata, fencing right-of-way and bldg. protective structures on Main Canal, East Low Canal, to Sta. 574 plus 16 and West Canal to Sta. 351 plus 72, to McWaters & Bartlett, 1712 S. Owyhee St., Boise, Idaho, **$58,069**. Bids 8/31, awarded 9/20. CD 8/14.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Yuba City—City, City Hall, **$100,000** bond election Oct. 31, water sys.

▲ **Ga., Griffin**—City, WW imprvs., Proj. 9-P-1052, **$1,225,000**. Wiedeman & Singleton, P. O. Box 1828, Atlanta, consult. engrs.

Ga., Savannah—City, voted bonds, WW imprvs. **$100,000**.

N. C., Wilson—City, WW imprvs. Proj. 31-P-1030. **$330,000**. Wm. C. Olsen, Raleigh Bldg. & Loan Bldg., Raleigh, consult. engr.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, sanitary sewers in Mendocino Lane, Altadena, **$156,600**; sanitary sewer in Heleo Ave., Temple City, C. I. 1416, **$92,400**. C. E. Arnold, co. engr.

Calif., Mountain View—City, 140 Franklin St., sewage treatment plant, **$400,000**. Whipple Eng. Co., 205 Hamilton Ave., Palo Alto, engr. CD 10/11/45.

Ga., Griffin—City, sanitary sewer imprvs., Proj. 9-P-1051. **$821,790**. Wiedeman & Singleton, P. O. Box 1828, Atlanta, consult. engrs.

Ga., Savannah—City, voted bonds, sanitary sewer imprvs. **$800,000**. CD 5/18.

Ill., Bensonville—Village, Village Hall, sewage treatment works and sewerage sys. **$300,000**. Suhr, Berryman, Peterson & Suhr Inc., 130 N. Wells St., Chicago, Zone 2, engr.

▲ **Ill., Chicago**—City, City Hall, Zone 2, storm sewer 50 and 53 Sts. between Morgan and Raine Sts., also in Aberdeen St. between 50 and 53 Sts. **$1,000,000**.

Miss., Amory—City, 2 sanitary sewer imprvs., Proj. 22-P-1013, **$109,500**, Proj. 22-P-1014, **$109,750**, Allen & Hoshall, 65 McCall Pl., Memphis, Tenn., consult. engrs.

Miss., Grenada—City, 4 sanitary sewer imprvs., Proj. 22-P-1033, **$91,696**, Proj. 22-P-1035, **$84,940**, Proj. 22-P-1036, **$123,559**; Proj. 22-P-1037, **$56,810**. Biggs, Weir & Chandler, 224 N. Congress St., Jackson, consult. engrs. CD 1/23.

Mo., Vinita Park (St. Louis 14, P. O.)—Village, Charles W. Ermes, mayor, Village Hall, 8205 Jackson Ave., Zone 14, voted bonds Sept. 19, sys. of trunk and lateral sewers. **$250,000**. CD 8/25.

Neb., Omaha—City, City Hall, 18 and Farnam Sts., $250,000 bond election Nov. 7, main and storm sewers. E. W. Woodbridge, city engr. CD 11/10/48.

N. C., Wilson—City, sanitary sewers, Proj. 31-P-1032, **$100,000**; Proj. 31-P-1033, **$61,100**. L. E. Wooten & Co., Box 2984, Raleigh, consult. engrs.

Okla., Warr Acres—City, voted bonds, sanitary sewers. **$330,000**. Hudgins-Thompson-Ball & Assoc., 1100½ W. Main St., Oklahoma City, consult. engrs. CD 9/15.

Tenn., Englewood—City, sanitary sewer imprvs. **$145,000**. L. A. Schmidt, Jr., 817 Broad St., Chattanooga, consult. engr.

▲ **Tenn., Nashville**—First Suburban Water Utility Dist. of Davidson Co., c/o engrs., sanitary sewer imprvs., Proj. 40 P 1039, **$1,437,500**, Polk, Powell & Hendon, Cotton State Bldg., consult, engrs.

Tex., Garland—City, voted bonds, sanitary sewer lines. **$375,000**. H. B. Gieb & Assoc., Texas Bank Bldg., Dallas, consult. engrs.

BRIDGES

▲ **D. C., Wash.**—D. C. Hy. Dpt., District Bldg. East Capitol Street Bridge **$12,000,000**. J. E. Greiner Co., 1201 St. Paul St., Baltimore, Md., consult. engr. H. R. Howser, District Bldg., Engineers of Bridges.

Ga., Savannah—City, voted bonds, streets imprvs. **$200,000**.

▲ **Miss., Jackson**—City, imprv. various streets, Proj. 22 P 1023, **$2,000,000**. E. B. Cavallo & George Wier, 209 Barnett-Madden Bldg., consult. engrs.

Neb., Falls City—Richardson Co., Falls City, election Nov. 7, levy to provide **$272,500** bridge construction. CD 4/18/49.

Neb., Omaha—City, City Hall, 18 and Farnam Sts., **$200,000** bond election Nov. 7, paving parking areas at Municipal Stadium. E. W. Woodbridge, city engr. CD 7/27.

▲ **North Carolina**—State Hy. & P. Wks. Comn., Raleigh, Carteret Co.,—bridge over Bogue Sound, from Morehead City to Atlantic Beach, Proj. 2037, **$900,000**.

Columbus, Bladen and Pender Counties—bridge and roadway from N. C. Route 87 north of Acme, to N. C. Route 53 east of Kelly, across Cape Fear River, Proj. 3-214, **$1,000,000**.

Madison Co.—bridge over French Broad River near Hot Springs on U. S. 25 and 70, Proj. 9709, **$200,000**.

Mecklenburg Co.—county bridge over Catawba River on N. C. Route 16, Proj. 6561, **$475,000**.

Rowan and Davidson Counties—bridge and approaches over Yadkin River on U. S. 29, Proj. 6733, **$500,000**.

Yadkin and Forsyth Counties—bridge over Yadkin River and approaches on U. S. 421, between Winston-Salem

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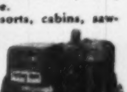

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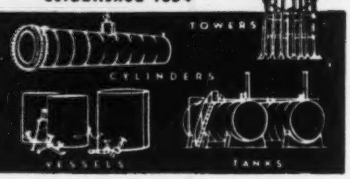

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and Yadkinville, Proj. 7390, **$400,000.** Wm. H. Rogers, Jr., c/o owner, state hy. engr.

Saskatchewan—Govt. of Canada, Hunter Bldg., Ottawa, Ont.,

Prince Albert—bridge over North Saskatchewan River, to be named MacKenzie King Memorial Bridge, **$200,000.**

STREETS AND ROADS

Calif., Los Angeles—Bd. Supervs, Los Angeles Co., 501 Hall of Records, curbs, gutters, walks in Alix St., C. I. 1413, Los Angeles, **$68,590**; walks in Lorelei Ave. and other street, Bellflower, **$78,700**; walks in Hazelbrook Ave. and other streets, C. I. 1412, Mayfair, **$79,100.** C. E. Arnold, co. engr.

Calif., Pasadena—City, 100 N. Garfield Ave., imprv. Ashbury Rd., etc., **$100,000.** John H. Allin, city engr. CD 11/15/44.

Miss., Natchez—Adams Co., voted bonds, road imprvs. **$520,000.** CD 9/11.

N. J., Union City—City Comn., City Hall, repaving Bergenline Ave. from Jersey City line to West New York, also will take in New York Ave. from 32 St. south to Jersey City, **$165,000.**

Tex., O'Neill—City, street imprvs., incl. drainage, curbs, gutters, re-surf. **$224,000.**

AIRPORTS

O., Dayton—AIRPORT IMPRVS.—Hamilton Webster, mgr. Dayton Municipal Airport, New Troy Pike, repairing runways, incl. break up and remove 48,000 sq yd. damaged concrete **$108,000**; break up and remove sub-base under concrete, **$16,000**; put in new layer of sub-base, **$28,000**; replace damaged concrete with new **$288,000**; repair 40 inlet-type manholes along runways for drainage **$5,000**; reseal expansion joints with tar and rubber, **$20,000**; underseal some 75,000 sq. yd. pavement with bit. by drilling holes and pumping the material under it, **$65,000.** CD 10/23/45.

† **Fla., Jacksonville**—FUEL FACILITIES—Yards & Docks Annex, Navy Dpt., Arlington, Va., constr. addnl. fuel facilities at Naval Air Station, **$500,000.**

▲ **Neb., Omaha**—TERMINAL—City, City Hall, 18 and Farnam Sts., **$1,000,000** bond election Nov. 7, terminal bldg. at Municipal Airport. E. W. Woodbridge, city engr. CD 5/4.

Que., Burnt Lake—AIRPORT—Quebec North Shore & Labrador R.R. Co., 360 St. James St., Montreal, Que., airport 4 mi. from here, **$350,000.**

AMERICANS ABROAD

Turkey—Govt. of Turkey, Ankara, plans dam and power house on Sakarya River near village of Sariyar in northwest Awatolia, **$47,000,000** of which $8,200,000 will be ECA funds to pay for U. S. equipment and engrg. services. Frederick R. Harris, Inc., 27 William St., New York, Zone 5, N. Y., engr.

LATIN AMERICA

Brazil, Cubata—Conselho Nacional de Petroleo, Republic of Brazil, Pub. Wks. Dpt., Rio de Janeiro, Brazil, plans large refinery for imported crude, **$15,000,000.** Hydrocarbon Research, Inc., 115 Broadway, New York, N. Y., engr. CD 1/8/48.

Colombia, Buenaventura—Republic of Colombia, Dpt. of El Valle, plans 105 mi. products pipe line between Buenaventura and Cali. **$7,500,000.**

Mexico, Mexico City—Cia Distribuidora Comercial, S. A., Balderas, 96, 203-05, Mexico City, plans electric refrigerator factory. **$300,000.**

Mexico, Mexico City—Mexico City Govt., Palacio Municipal, Mexico City, plans 24,000-seat municipal auditorium. **$2,500,000.** CD 6/22

PUBLIC BUILDINGS

▲† **Ariz., Phoenix**—HEADQUARTERS—Bureau Reclamation, Dpt. Interior, Boulder City, Nev., headquarters bldg. for Parker-Davis Dams, **$1,700,000.** CD 9/12/44.

Fla., Florence—CITY HALL—City plans by Turner & Northington, Medical Arts Bldg., Florence, city hall, Proj. 1-P-1014, **$435,000.**

Ga., Fort Valley—DORMITORY—Bd. Regents, University System of Georgia, c/o Aeck & Assocs., archts., 140 Peachtree St. Atlanta, dormitory at Fort Valley State College, Proj. 9-P-1055, **$467,000.** CD 11/22/46.

Ill., Litchfield—SCHOOL—Litchfield Bd. Educ., Litchfield, voted bonds, Litchfield Community High School addn. **$500,000.**

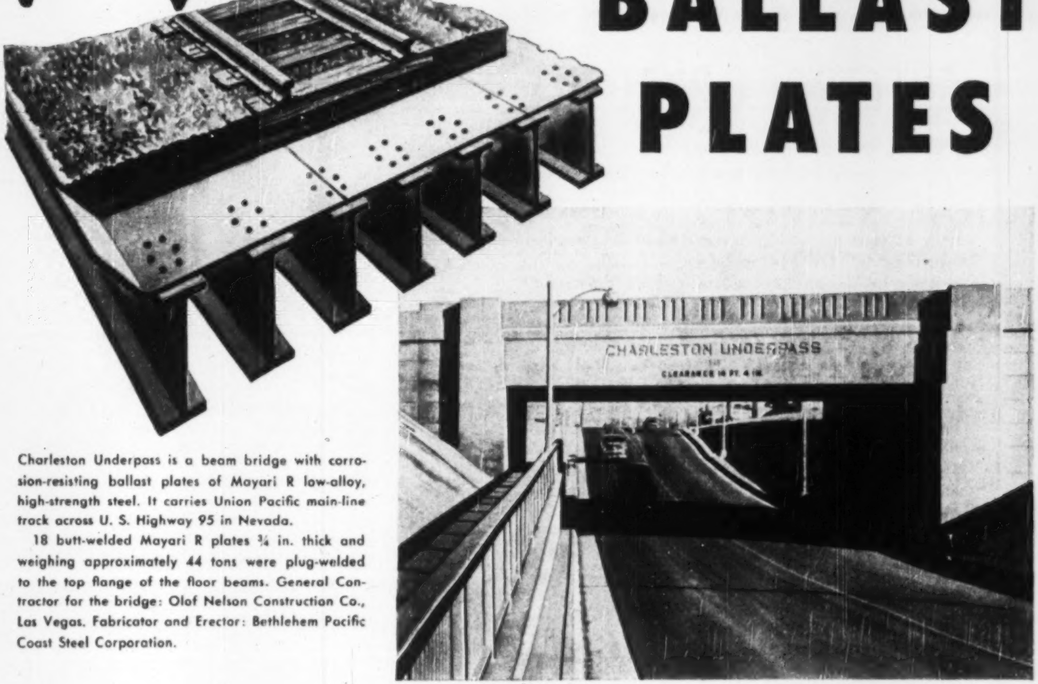
▲ **Ill., St. Charles**—HIGH SCHOOL—School Dist. 303, 705 W. Main St., plans by Perkins & Will, 399 Y. Jackson St., Chicago, Zone 6, high school, **$1,000,000.**

▲ **Ind., Muncie**—HOUSING—Muncie Housing Auth., Muncie, plans by A. M. Staruss, Inc., Strauss Bldg., Fort Wayne, two low cost housing, incl. 350 in northeast area and 250 in southwest part, **$3,500,000.**

Ia., Webster City—SCHOOLS—Bd. Educ., Webster City, voted bonds schools. **$490,000.**

(Continued on page 93)

Mayari R MAKES ECONOMICAL BALLAST PLATES



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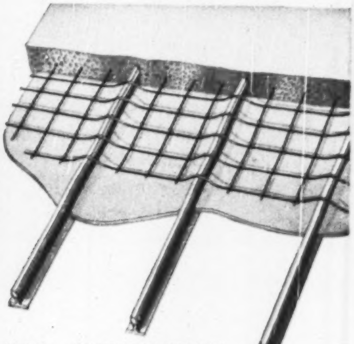

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(Continued from page 90)

▲ **Md., Frederick**—HOUSING—Frederick Housing Auth., John Shaw, exec. secy., Bentz and W. 6 Sts., plans by Chas. F. Bowers, 2300 E. Patrick St., 2 story, bsmnt., 60 unit brick housing, **$600,000**; 2 story bsmnt., 65 unit brick housing (white), **$800,000**.

Mass., Holyoke—SCHOOL—City, School Dpt., City Hall, plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, brick, steel Highland Jr. High School, Northampton St. **$600,000**.

† **Mich., Battle Creek**—BUILDINGS—Dpt. Army, Fort Custer, reconstr. bldgs., roads, utilities at Fort Custer, **$900,000**.

Mo., University City (St. Louis 5, P. O.)—SCHOOL—City, School Dist., Bd. Educ., Dr. Julius E. Warren, supt. schools, 6701 Delmar Blvd., plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, brick, concrete school on 5 acre site, 82 St. south of Fogerty Park, **$400,000-$500,000**. CD 9/18.

▲ † **Neb., Fremont**—GRAIN STORAGE BINS—Commodity Credit Corp., 14 St. and Independence Ave. S. W., Wash. 25, D. C., 4,172,700 bu. grain storage bins, **$2,000,000**.

▲ **Neb., Omaha**—AUDITORIUM—City, City Hall, 18 and Farnam Sts., **$2,794,000** bond election Nov. 7, city auditorium. Approx. **$5,500,000**. L. A. Daly, Insurance Bldg., archt. CD 12/4/47.

Neb., Omaha—FIRE STATIONS—City, City Hall, 18 and Farnam Sts., **$450,000** bond election Nov. 7, fire department stations. E. W. Woodbridge, city engr.

▲ **N. J., Jersey City**—SCHOOL—Bd. Educ., 2 Harrison Ave., 23-room grammar school in Greenville Section; rear of State Teachers College, Judson Blvd. **$1,200,000**; grammar school on Jackson Ave. near Union St., **$1,325,000**. CD 11/1/45.

▲ **N. C., Raleigh**—STATE ARTS—State of North Carolina, Dr. Christopher Crittenden, State Dpt. Archives & History, Raleigh, 4 story, 200x320 ft., 272x328 sq. ft. State Arts Bldg. **$3,540,264**.

▲ **N. C., Salisbury**—HOUSING—Salisbury Housing Auth., c/o Charles W. Connelly, archt., 1201 Elizabeth Ave., Charlotte, 180 housing units. Approx. **$1,000,000**.

O., Northbridge—SCHOOL—Northridge Twp. Bd. Educ., Dixie Dr., Dayton, voted **$410,000** bonds, school CD 9/5.

O., Vandalia—SCHOOL—Butler School Dist. Bd. Educ., voted **$495,000** bonds school. CD 8/10.

Pa., Landisburg—HIGH SCHOOL—State Public School Bldg. Auth., Harrisburg, and Ickesburg-Landisburg Joint School Bd., Landisburg, plans by Wm. H. Lee, 16 S. Broad St., Phila., high school. **$400,000**.

Tex., Dallas—SCHOOL—Pleasant Grove School Dist., 1334 S. Buckner Blvd., bond election Oct. 14, addnl. masonry school, concrete slab fdn., Pleasant Grove Dist. **$400,000**.

Va., Virginia Beach—HIGH SCHOOL—City, plans by Louis A. Oliver, 823 W. 21 St., Norfolk, high school. **$700,000**.

Wash., Camas—SCHOOL—School Bd., Camas, school, **$420,000**.

Wash., Edmonds—SCHOOLS—School Dist. 16, Edmonds, voted $475,000 bonds Lynwood Junior High School, **$650,000**; 3 grade school addns., **$350,000**; vocational bldg., **$50,000**. CD 6/27.

▲ **Wash., Port Angeles**—SCHOOL—School Bd., Port Angeles, $344,000 bond election Nov. 7 high school, **$1,221,000**. Mallis DeHart & Hopkins, Lyon Bldg., 3 and James Sts., Seattle, Zone 4, archts. CD 11/10/48.

Wash., Pullman—SCHOOL—School Bd., Pullman, voted special levy high school addn. **$500,000**. CD 4/18/49.

Wash., Raymond—SCHOOL—School Bd., Raymond, voted bonds, school, **$400,000**. CD 8/11.

▲ † **Wash., Richland**—HOUSING—Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash., 25, D. C., rehabilitation prefabricating housing units, **$600,000**. 300 new houses, **$3,000,000**.

Wash., Shelton—SCHOOL—School Bd., Shelton, $188,000 bond election Nov. 7, concrete, brick school, **$575,000**. CD 3/31/49.

Ont., Sarnia—SCHOOL—Sarnia Bd. Educ., F. H. Walker, chn., 145 S. Mitton St., 15 to 20 room high school, Russell St. North. Approx. **$300,000-$400,000**.

COMMERCIAL BUILDINGS

▲ **Calif., Yountville**—BOYS TOWN—Ostomist Clubs of America, c/o David Riffle, pres. Richmond Chapter, 818 San Pablo Ave., Richmond, Boys' Town, incl. schools, churches, cottages, etc., near here. **$5,000,000**.

▲ **Ill., Chicago**—HOSPITAL IMPRVS.—St. Lukes Hospital, 14 and Michigan Sts., plans by Schmidt, Garden & Erickson, 104 S. Michigan St., Zone 3, raze old hospital bldgs and constr. new buildings, **$5,000,000**.

▲ **Ia., Davenport**—STORE—Sears, Roebuck & Co., W. Arthington and S. Homan Sts., Chicago, Ill., 100,000 sq. ft. department store, Approx. **$1,500,000**.

▲ **Mass., Cambridge**—AUDITORIUM—Massachusetts Institute of Technology, 77 Mass. Ave., auditorium, Memorial Dr., **$1,500,000**.

▲ **Mo., St. Louis**—HOSPITAL—John Cardinal Glennon Memorial Hospital, c/o Archbishop Joseph E. Ritter, Catholic Archdiocese of St. Louis, 3810 Lindell Blvd., Zone 8, plans by Maguolo & Quick, 4903 Delmar Blvd., Zone 9, 12 story, bsmnt., rein.-con., brick, steel, stone children's hospital Grand Blvd. and Park Ave., **$5,000,000**, Neergaard, Angew & Craig, 41 E. 42 St., New York, N. Y., hospital planning consultants. CD 8/29.

▲ **Neb., Sidney**—APARTMENT—L. G. Goetz & E. S. Keller, Sidney, apartment, **$1,000,000**.

N. Y., Forest Hills—APARTMENT—Valley Brooks Realty Corp., c/o Philip Birnhaum, 12 E. 48 St., New York, Zone 17, 6 story apartment Yellowstone Blvd. and 65 Ave. **$725,000**.

N. Y., New York—APARTMENT—Greystone 38 Corp., 16 Court St., Brooklyn, Zone 2, plans by Maxfeld Blaufeux, 44 Court St., Brooklyn, Zone 2, 6 story apartment, Greystone Ave. and 240 St. **$774,000**.

▲ **N. Y., New York**—APARTMENT—82 Euguene Realty Corp., 22 W. 48 St., Zone 19, plans by Sylvan Bien. 565 Fifth Ave., Zone 17, 19 story, penthouse apartment 603-609 E. 82 St. **$2,300,000**. Weinberoer & Weishoff, 33 W. 60 St., Zone 23, consult engrs.

N. Y., New York—OFFICE, etc.—Parsons School of Design, 136 E. 57 St., Zone 22, plans by Irwin S. Chanin, 122 E. 42 St., Zone 17, office and school, 247 E. 44 St. **$500,000**.

N. Y., New York—APARTMENT—Renee Operating Corp., 16 Court St., Brooklyn, Zone 2, plans by Maxfeld Blaufeux, 44 Court St., Brooklyn, Zone 2, 6 story apartment, Barnes Ave. north of Brady Ave. **$576,000**.

N. C., Burlington—CHURCH—Front Street Methodist Church, c/o R. R. Markley, archt., Durham, church. **$500,000**.

Pa., Perkasie—SCHOOL—Sell-Paerk Joint School Com. 313 Third St., plans by Micklewritht & Mountford, 72 Ewing St., Trenton, high school. Approx. **$500,000**.

Tex. Bellaire—DWELLINGS—Townsend Constr. Co., 3525 Westheimer St., 75 shake, brick trim dwellings, concrete slab fdn. **$900,000**.

▲ **Tex., Dallas**—HOMES—George A. Jackson & Assocs., 1806 Main St., 850 single masonry family homes, **$11,050,000**; and 200 masonry type apartment units, **$3,200,000**, both on 425-acre tract by Garland Rd., Jupiter Rd. and Easton St.

▲ **Tex., Dallas**—APARTMENTS—Dan Williams & Assoc., Andrews Bldg., plans by Harwood K. Smith & Joseph M. Mills, Mercantile Bank Bldg., 212 unit apartment, Alto and Gilbert Sts. **$954,000**.

▲ **Tex., Dallas**—APARTMENTS—Dan C. Williams & S. R. Frank, Republic Bank Bldg., plans by Harwood K. Smith & Joseph M. Mills, Mercantile Bank Bldg., 15 story, 255 unit, masonry apartment, concrete pier and beam fdn., 2600 Turtle Creek, **$1,147,500**; 9 story 88 apartment unit, masonry apartment, concrete pier and beam fdn., Turtle Creek and Lemmon St., **$480,000**.

Tex., Garland—DWELLINGS—Allied Homes, Inc., 9907 Garland Rd., Dallas, 80 addnl. 1 story brick veneer dwellings, near here. **$400,000**.

Tex., Houston—HOMES—Bert R. Coats, 2204 Darring-St., 33 high-class masonry type homes, southwest Section off Brays Bayou, **$495,000**.

Tex., Houston—DWELLINGS—Weslayan Plaza Co., c/o R. E. Baldwin, 1015 W. Gray St., 88 frame dwellings, concrete slab fdn. in Weslayan Pl. **$616,000**.

▲ **Tex., Houston**—QWELLINGS—Hugh Wilkin, c/o Wilkin Lumber Co., 2302 Danville St., 100 high-type masonry dwellings, southwest section off Brays Bayou, **$1,250,000**.

▲ **Tex., Longview**—DWELLINGS—Lester Matlock, Longview, 150 brick dwellings on 116-acre tract on N. S. Hy. 80, 3 mi. east of here, **$3,750,000**.

▲ **Tex., Marshall**—RESIDENCES, etc.—East Texas Baptist College, Marshall, residences for staff, etc., **$300,000**; commercial, **$750,000**; main college bldg., **$300,000**. CD 10/19/44.

Tex., Waco—HOSPITAL—Baptist Memorial Hospital, Waco, plans by W. Cocke, 1507 Franklin St., and Bob Barrett, consult. archt., 2905 Milam St., Houston, hospital addns., nurses quarters **$650,000**.

▲ **Que., Montreal**—HOSPITAL—Association of North End Businessmen, c/o Dr. Gerard Morin, 6450 Delormier Ave., 600-bed hospital, **$5,000,000**.

INDUSTRIAL BUILDINGS

▲ **Calif., Wilmar**—PLANT—Southern California Edison Co., 601 W. 5 St., Los Angeles, steam electric generating plant, **$38,000,000**.

Ill., Chicago—PLANT—National Video Co., Kilbourn and Grace Sts., plans by Friedman Alschuler & Sincere, 223 W. Jackson St., Zone 6, cathode tube plant, on 5½ acre site, **$800,000**.

La., Bossier City—PLANT—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, dehydration plant, near here. **$863,000**.

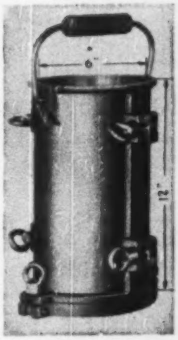
▲ **La., Chalmette**—REFINERY—Bay Petroleum Corp., Chalmette, modernizing, expanding refinery, **$2,750,000**. Universal Oil Products Co., 703 Cowan St., Houston, Tex., consult engr.

▲ **La., Lake Charles**—PLANT—Continental Oil Black Co., and Continental Oil Co., Lake Charles, carbon black plant adjacent to Continental Oil Co. refinery. **$1,500,000**.

La., Monroe—GAS COMPRESSOR STATION—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, gas compressor station, near here. **$750,000**.

N. M., San Isidro—PLANT—Jámez Mountain Electric Co-operative Inc., San Isidro, plans by Continental Engineers, Inc., engr. and archt., 1310 Avenue Q, Lubbock, Tex., generating plant, **$1,230,000**.

N. Y., Brooklyn—GARAGE—R. H. Macy & Co., Inc., 151 W. 34 St., New York, Zone 1, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, garage alterations, Nostrand Ave. and E. 29 St., **$225,000**.



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N. Y., Brooklyn—PLANT—Sunnydale Farms Inc., 6 Harrison St., New York, Zone 13, plans by Ernest Alicandri, c/o owner, 2 story milk processing plant alterations, 392-414 Stanley Ave. **$125,000.**

N. Y., Jamaica—SHOP, etc.—Merkel Bros., c/o Richard Shutkind, archt., 147 Fourth Ave., New York, 1 story paint shop, garage and office, 95 Ave. and 148 St., **$100,000.**

N. Y., Maspeth—FACTORY—Berger Machine Co., 74-16 Grand Ave., plans by Herbert Gretsch, 32 Court St., Brooklyn, Zone 2, electronics and radar equipment factory, Grand and 74 Ave., **$250,000.**

N. Y., New York—GARAGE—Manhattan-Pontiac Co., 1775 Broadway, Zone 19, plans by Horace Ginsbern & Assoc., 205 E. 42 St., Zone 17, garage, 681 Eleventh Ave. **$175,000.**

N. Y., New York—GARAGE—Safeway Stores, Inc., 300 Mercer St., Jersey City, N. J., plans by Max Weschler, 17 E. 42 St., Zone 17, 1 story commercial garage, White Plans Rd. and 236 St. **$125,000.**

N. D., Grand Forks—OIL REFINERY—Standard Oil Co. of North Dakota, 1401 Dyke Ave., oil refinery. Approx. **$300,000.**

O., Dayton—FACTORY—Burdett Oxygen Co., 3300 Lakeside St., Cleveland, 15,000 sq. ft. factory on 1½ acre tract, McCook Ave. **$150,000.**

Oklahoma—GASOLINE PLANTS EXPANSION—Oklahoma Natural Gas Co., 401 N. Harvey St., Oklahoma City, natural-gasoline plants expansion in Lindsay-Antioch-Maysville area. **$750,000.**

Okla., Apache—GRAIN ELEVATOR—Farmers Union Cooperative, Apache, 300,000 bu. grain elevator. **$100,000.**

Okla., Oklahoma City—SHOP, etc.—Lane Wells Co., Apco Tower, plans by Conner & Pojezney, Kerr-McGee Bldg., Zone 2, sales shop and office. **$110,000.**

▲ **Okla., Ponca City**—REFINERY—Cities Service Oil Co., Ponca City, refinery expansion and modernization, **$2,750,000**; storage, **$200,000**; 100 ft. water cooling tower, **$225,000**; steam pipe line sys., **$100,000**; c.i. water lines sys., **$65,000.** M. W. Kellogg Co., 225 Broadway, New York, N. Y., consult. engr CD 9/7

Tenn., Memphis—WAREHOUSE, etc.—Cook Truck Lines, Inc., George H. Cook, pres., 139 E. Virginia Ave., imprv. 30,000 sq. ft. warehouse, construct modern truck docking facilities, truck garage, office, E. H. Crump Blvd. and Florida St.

Tex., Abilene—PLANT—Conotex Co., c/o Don J. Kuchnicki, Abilene, plant unit. **$140,000.**

▲ **Tex., Alvin**—PLANT—Phillips Petroleum Co., City Natl. Bank Bldg., Houston, gasoline and recycling plant. **$9,500,000.**

Tex., Amarillo—PACKING PLANT—Tri-State Packing Co., Capital Hotel, 122x212 ft. masonry packing plant, concrete pier and beam fdn. **$275,000.**

Tex., Dallas—WAREHOUSE—Skillern's Drug Stores, 520 N. Pearl St., warehouse unit. **$100,000.**

Tex., Desdemona—PLANT—Magnolia Petroleum Co., Desdemona, reconstr. damaged portion casing head gasoline plant. **$125,000.**

Tex., Eckert—PUMPING STATION—Humble Oil & Refining Co., Humble Bldg., Houston, auxiliary 400 h.p. pump. station unit on 370 mi. line between Kemper Station near Big Lake to Satsuma, near Houston, 14 mi. north of Fredericksburg. **$200,000.**

Tex., El Campo—PLANT—Houston Natural Gas Corp., 1316 Texas St., Houston, plant and service expansion. **$100,000.**

Tex., El Campo—PLANT—Phenix Dairy, 1220 Smith St., Houston, plans by R. Graham Jackson & Frank C. Dill, 4511 Kyle St., Houston, 2 story, 70x120 ft. masonry ice cream plant, concrete fdn., air conditioning. **$170,000.**

Tex., Houston—PLANT—P. R. Daniel, Sr. & Assocs., 1121 Austin St., radiator mfg. plant, H. Wilson Dr. and Turkey St. **$100,000.**

Tex., Houston—WAREHOUSE—Englander Co., Inc., 5006 Calhoun Rd., addnl. masonry warehouse. **$225,000.**

Tex., Houston—PLANT—Halliburton Oil Well Cement Co., N. Esperson Bldg., plans by Charles S. Chase, 1309 Anita St., 2 story heavy concrete fdn. plant. **$500,000.**

Tex., Houston—WAREHOUSE—National Industries Corp., 1st. Natl. Bank Bldg., 1 story, 45,000 sq. ft. masonry, steel, concrete frame warehouse, Nance and Elysian Sts. **$300,000.**

Tex., Houston—AUTO SERVICE, etc.—South Main Chevrolet Co., 2300 Main St., 150x150 ft., masonry auto service, sales, shop, Travis and McGowan Sts. **$200,000.**

Tex., Pasadena—PLANT—Champion Paper & Fibre Co., Pasadena, plant expansion on Ship Channel. Approx. **$250,000.**

Tex., San Angelo—BOOSTER STATION—Pan-American Pipe Line Co., M. Esperson Bldg., Houston, addnl. crude oil booster station and auxiliary facilities. **$200,000.**

Wash., Bellingham—PLANT—Puget Sound Pulp & Timber Co., Laurel, Bellingham, bleaching plant addn. **$119,640.**

Wash., Clarkston—PLANT—Meats, Inc., Clarkston, plans by J. I. Mattson, 107 Cherry St., Seattle, Zone 4, meat packing plant addn. **$250,000.** CD 9/26.

Wash., Seattle—PLANT BALCONY—Boeing Airplane Co., 7755 E. Marginal Way, balcony addn. to Plant 2. **$170,000.**

Wash., Vancouver—CANNERY—Washington Canners Cooperative, Vancouver, 60x230 ft., cannery addn. **$250,000.**

Alta., Edmonton—WAREHOUSE—International Harvester Co. of Canada Ltd., Edmonton, warehouse. $350,000.

Que., Mount Royal (Postal Dist. Montreal)—BREWERY—Canadian Breweries, Ltd., 297 Victoria St., Toronto, brewery, Cote de Lierse Rd. Approx. $300,000.

UNCLASSIFIED

Ala., Mobile—MOTOR COURT—Roland Seigle, Herman Masur & J. N. Houck, Monroe, La., motor court. $250,000.

Calif., Yuba City—FIRE ALARM SYSTEM—City, City Hall, $140,000 bond election Oct. 31, new fire alarm sys.

▲ **Colorado**—RURAL DISTRIBUTION LINES—Mountain View Electric Assn., constr. Sect. L rural distr. lines in eastern Lincoln Co. $1,020,000. Flora Eng. Co., 1717 E. Colfax Ave., Denver, consult. engr. CD 6/4/48.

▲ **Colorado**—RURAL DISTRIBUTION LINES—Southeast Colorado Power Assoc., La Junta, 1,917.7 mi. rural distr. line; 40.5 mi. 24 kv line; 86 mi. 69 kv transmission line and sys. imprvs., Prowers Co., $3,332,000.

Fla., Sanford—TERMINAL—City, terminal for use of St. Johns River Steamboats. $350,000. Clifford McKibbin, city engr.-mgr.

Idaho—RURAL DISTRIBUTION LINES—Prairie Power Co-operative, Fairfield, 74 mi. rural distr. lines, Comas Co., $175,000. R. Welty, The Dalles, Ore., consult. engr. CD 7/14.

Ia., Des Moines—SWIMMING POOL—City, City Hall, plans by Brooks-Borg, 815 Hubbell Bldg., swimming pool in Grand View Park. $125,000. CD 1/19.

La., Minden—PIPE LINE—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, 16 mi. 12 in. pipe line. $200,000.

Miss., Holly Springs—RURAL DISTRIBUTION LINES—City, Electric Dpt., 153 mi. rural distr. lines and sys. imprvs. $325,000.

▲ **Neb., Omaha**—PARK—City, City Hall, 13 and Farnam Sts., $1,000,0000 bond election Nov. 7, park and recreational facilities. E. W. Woodbridge, city engr. CD 10/28/48.

N. J., Jersey City—PARK, etc.—City Comn., Jersey City, park, playground, on 5 acre tract on city-owned land just south of Roosevelt Stadium, $500,000. Hugh C. Clark, City Hall, city engr.

N. Y., New York—BATH HOUSE—Parkchester Beach Club, 100 White Plains Rd., Zone 61, plans by Andrew Balasz, c/o owner, 1 story bath house, 175 Soundview Ave. $120,000.

Okla., Oklahoma City—STADIUM—Catholic Diocese of Oklahoma, 1810 N. Hudson St., Zone 3, plans by Robt. T. Valberg, 1323 N. Robinson, athletic stadium at Catholic High School, 50 and Western Sts. $175,000.

S. D., Sioux Falls—STORAGE TANKS—Great Lakes Pipe Line Co., P. O. Drawer No. 2239, Kansas City, Mo., 6 oil storage tanks. Approx. $300,000. W. L. Luckfield, c/o owner, ch. engr.

▲ **Texas**—GAS PIPE LINE—Texas Illinois Natural Gas Pipe Line Co., 20 N. Wacker St., Chicago, Ill., 35 mi. 24 in. lateral pipe line radiating from Chocolate Bayou area and running to Sta. 301 at Wharton, $875,000; 37 mi. 12 in. lateral line radiating from Chocolate Bayou field area, near Angleton, $560,000. Fish Eng. & Constr. Co., M & M Bldg., Houston, engr.

Tex., Dallas—TRANSFORMER UNIT, etc.—Dallas Power & Light Co., Dallas Power & Light Bldg., addnl. transformer unit in western Oak Cliff sect., $64,780; 13 mi. high voltage transmission line in sect. of line surrounding the city, $673,000. CD 2/3/49, under Industrial Buildings.

Tex., Marathon—LAKE RESORT—Brewster Co., Court House, Alpine, county lake resort, incl. lake development, playgrounds, etc. $100,000.

Alta., Edmonton—NATURAL GAS—University of Alberta, Edmonton, complete conversion to natural gas for heat and power at University. $200,000. Prof. A. Hastie, University of Alberta, Edmonton, engr.

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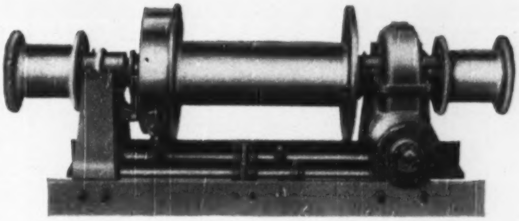

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Construction schedules for the modern MANHATTAN HOUSE apartments called for the 20-story, *reinforced concrete* building to be ready for the first occupants by October 1, 1950. When it came time to erect the superstructure, the Corbetta Construction Company set up a closely timed operational cycle—the pouring of each floor, 46,000 sq. ft., in five sections on a schedule of one section per day. Then, with winter just around the corner, they cut the cycle period from five days to four . . . a saving of 40% in time over the 7 days normally required for cold weather concrete.

This time saving was accomplished by skillful management and the use of Lehigh Early Strength Cement. Column and beam forms were stripped in 24 hours, floor forms in 48 hours, and each was immediately reset. There was no guesswork—no sacrifice of quality. Corbetta engineers ran daily strength tests on the concrete for 24, 48 and 72 hour results.

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Concrete Contractor:	**CORBETTA CONSTRUCTION CO.**
Ready-Mix Concrete:	**COLONIAL SAND & STONE CO., INC.**
Architect:	**MAYER & WHITTLESEY, ASSOCIATED WITH SKIDMORE, OWINGS & MERRIL**
Owner:	**NEW YORK LIFE INSURANCE CO.**

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CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

Ia., Lynnville—B.A. 10/17—City, WW extens., imprvs., Sect. 3, pump house, water tower; Sect. 4, well pump and controls; Sect. 5, elevated steel water storage tank. Patera Eng. Co., 625 R U Bldg., Des Moines, engr.

N. Y., New Hampton—B.A. 10/17—Dpt. P. Wks., Municipal Bldg., New York Zone 7, exten. water supply sys., New York City Reformatory, for Dpt. Correction. Plans deposit $10. CD 8/13/45.

Pa., Greensburg—B.A. 10/23—Municipal Auth. of Westmoreland Co., 230 S. Pennsylvania Ave., 10 m. g. daily filtration plant and high and low service pump. stations, with plumbing, heating and electrical work along State Hy. Route 380 where it crosses Beaver Run adjacent to new dam under constr. Plans deposit $50. Laboon & Bankson, 1116 Berger Bldg., Pittsburgh, Zone 19, consult. engrs.

Calif., Los Angeles—B.A. 10/24—Bd. Supervs. Los Angeles Co., 501 Hall of Records, 10,716 ft. 6-in. pipe, fire suppression main in the Topanga Canyon Dist. $43,000. C. E. Arnold, co. engr.

† **La., Jonesville**—B.A. 10/24—U. S. Eng., Box 60, Vicksburg, Miss., constr. Jonesville Pump. Station, Catahoula Parish, Inv. 51-43. Plans deposit $10.

Tex., Corpus Christi—B.A. 10/24—Nueces County Water Control & Supply Dist. 2, Court house, Flour Bluff water sys. $700,000. J. E. Greiner & Co., 3712 Milam St., Houston, engrs.

LOW BIDDERS

Tex., Austin—Bd. Regents, University of Texas, c/o University Bldg., Austin, Sept. 28, central water chilling and distr. facilities, from R. O. Davis, Inc., Box 150, **$549,306**. Zumwalt & Vinther, 329 Merc. Sec. Bldg., Dallas, engrs. CD 8/16/44, under Public Buildings.

CONTRACTS AWARDED

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., 10 mi. 54- to 60-in. concrete water main, running from New Elm Fork plant near Carrollton to Bachman Lake plant, near city limits, to Cole Williams, Mandeville, La. **$2,137,245**. Bids 9/19. CD 9/26, under LB.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Md., Hyattsville—B. A. On or About 10/16—Washington Suburban Sanitary Comn., Hamilton St.; Contr. 244S, 710 ft. 15 in. RCSP, 7,090 ft. 24- to 30-in. RCDP and RCCPX sewers Indian Creek Trunk Sewer from Northeast Branch to Branchville Rd., Prince Georges Co. Bids 9/22 rejected, L. B. **$155,358**. CD 9/22 under LB.

D. C., Wash.—B.A. 10/16—Govt. of D. C., Director Sanitary Eng., District Bldg., 14 and Sts. N. W., Zone 4, sludge drying and incinerating equipment sewage treatment plant, Blue Palins. Plans deposit $50. Extended date. CD 9/26.

N. Y., Elmira—B.A. 10/16—City, sewage disposal plant addns., alterations. Plans deposit $50. Nussbaumer & Clarke, 327 Franklin St., Buffalo, engrs. CD 7/17/46.

Pa., West Chester—B.A. 10/16—President and Council, Municipal Bldg., alterations addns. to Taylor Run Plant and Goose Creek Plant, comprising impv. sewage treatment works. Plans deposit $40. Albright & Friel, Inc., 121 S. Broad St., Phila., Zone 7, consult. engr. CD 10/28/49.

Va., Roanoke—B. A. 10/16—City, Municipal Bldg., sewage treatment plant of activated sludge type together with sewerage interceptor sys. along Tinker Creek and Roanoke River, Contr. A, treatment plant const.; Contr. B, equipment except pump and blowers; Contr. C, pumps and blowers; Contr. D, sewerage interceptor sys. Plans deposit $25 for Contrs. A and D, $10 each Contrs. B and C. Alvord, Burdick & Howson, Civic Opera Bldg., Chicago, Ill., and Mattern & Mattern, 118-A Campbell Ave. S.W., engrs. CD 8/19/48.

R. I., Kingston—B.A. 10/18—State of Rhode Island, F. A. Adams, purch. agent, State House, Providence, sewage facilities addn. State College. $75,000. Hayden, Harding & Buchanan, 828 Park Square, Boston, Mass., engrs.

Tex., Waxahachie—B.A. 10/20—City, Contr. 3, sewage treatment plant addn. $125,000. Plans deposit $25. T. C. Forrest, Jr., Praetorian Bldg., Dallas, engr. Cd. 3/30/49.

Ind., Winona Lake—B. A. 10/23—Town Bd., Winona Lake, sewage treatment plant imprvs. $75,000. Boyd D. Phelps Inc., Michigan City, engr.

N. Y., Elmira—B. A. 10/23—City, sewage disposal plant alterations, addns. Plans deposit $50. Extended date. Nussbaumer & Clarke, 327 Franklin St., Buffalo, Zone 2, engrs. CD 9/15.

Wis., Walworth—B.A. 10/23—Village, 47,400 ft. sanitary sewers, sewage treatment plant and lift station. $249,000. Plans deposit $20. Baxter, Nelson & Woodman, 123 N. Williams St., Crystal Lake, Ill., engrs. CD 6/7.

Calif., Los Angeles—B. A. 10/24—Bd. Supervs. Los Angeles Co., 501 Hall of Records, sanitary sewers in Willard Ave., Temple City, C. I. 1310, $114,700. C. E. Arnold, co. engr. CD 5/9/49.

LOW BIDDERS

▲ **Mich., Saginaw**—City, R. A. Benway, purch. agt., City Hall, Sept. 19, from Mancini-Miller-Thompson Constr. Co., 23170 Schoenher St., Detroit, Div. A Sect. 2, 4,990 ft. 48 in. sewer tunnel, 1,897 ft. 54 in. sewer tunnel, 3,623 ft. 66 in. sewer tunnel, 3,962 ft. 72 in. sewer tunnel, 1,462 ft. 36 in. open cut, all appurtenances, **$757,511**; Div. A, Sect. 3, 20 ft. 48 in. sewer tunnel, 1,050 ft. 42 in. land section river crossing, 544 ft. 42 in. subaqueous section river crossing, 6,189 ft. 66 in. sewer tunnel, 865 ft. 30 in., 91 ft. 36 in., and 1,782 ft. 72 in. open cut sewer, 60 ft. 72 in. sewer outlet appurtenances, **$464,431**; Div. A, Sect. 5, constr. 13 regulator and backwater chambers, **$163,300**; Div. A, Sect. 6, constr. 16 regulator and backwater chambers, **$133,600**; Div. B, Sect. 1 constr. sewage pumping station, Webber St., **$242,000**; Div. B Sect. 4, brick, concrete sewage, storm water and flood pumpnig station, Hancock St., **$315,000**; Div. B, Sect. 5, 1 story, brick, concrete storm water and flood pumping station, Emerson St., **$265,000*****from Michigan Constr. Co., 21720 Eight Mile Rd. W., Detroit, Div. A, Sect. 1 12556 ft. 72 in. tunnel sewer, appurtenances, **$682,912**; Div. A, Sect. 4, 7,458 ft. 66 in. sewer tunnel, 3,700 ft. 78 in. sewer tunnel, 882 ft. 48 in. open cut sewer, incl. manholes, appurtenances, **$700,476*****from E. Jarbick Constr. Co., Saginaw, Div. B, Sect. 2, 1 story, brick, concrete storm, flood and sewage pumping station, Weiss St., **$182,488***** from H. A. Morse, Inc., 18176 Stout St., Detroit, Div. B, Sect. 3 1 story, brick, concrete flood, storm water, and sewage pumping station, Fourteenth St., **$398,740***** from Morse Boulger Destructor Co., 205 E. 42 St., New York, N. Y., Div. D, sledge and garbage incinerator, **$118,446***** from S. N. Nielsen Co., 3059 W. Augusta St., Chicago, Ill., Div. C, sewage and garbage plant, Proposal 2, **$1,995,000**. CD 7/20.

▲ **N. Y., New York**—Dpt. P. Wks., Municipal Bldg., Gansevoort Destructor Plant for Dpt. Sanitation, incl. Contr. 6, structures and equip.; Contr. 7, electrical work; Contr. 8, heating and ventilating; Contr. 9, plumbing from Merritt-Chapman & Scott Corp., 17 Battery Pl., Zone 4, **$4,446,191**. CD 9/21.

CONTRACTS AWARDED

† **Alaska, Ketchikan**—Dpt. Interior, Alaska Pub. Wks., Juneau, sewers and street imprvs., to Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, **$525,075**. Bids 8/30. CD 9/7, under LB.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

October 17
Indiana
Virginia
October 18
Virginia
October 19
Kansas
October 20
Illinois

October 24
New Jersey
Wisconsin
October 25
California
October 26
California

Ont., Fergus—Canadian National Rys., E. R. Logie, ch. engr., Union Station, Toronto, subway under railway track, incl. removal portion railway embankment and constr. new abutments, at Mile 45.4 Fergus subdivision. Plans deposit $25.

La., New Orleans—B.A. 10/25—City Purchasing Dpt., City Hall Bldg., overpass and appurtenant work at S. Jefferson Davis Parkway and Union Passenger Terminal tracks, $528,576. Plans deposit $30. T. Edward Ernst, 822 Perdido St., engr.

N. J., Monmouth Junction—B.A. 10/26—The Pennsylvania Railroad Co. at office L. P. Struble, ch. engr., Eastern Region, Pennsylvania Station, 30 St., Phila., Pa., elimination of grade crossing at New or Tower Road. Plans deposit $10; adv. ENR 10/12.

New Jersey and Pennsylvania—B.A. 11/2—Delaware River Joint Toll Bridge Comn., 526 Broad St. Bank Bldg., Trenton, 8, N. J., constr. Morrisville approach to Delaware River Bridge from Morrisville, Pa. to Trenton, N. J. Plans deposit $15. J. E. Greiner Co., 1201 St. Paul St., Baltimore 2, Md., engr.; adv. ENR 10/12. CD 2/4/49.

▲ **Tex., Dallas**—B.A. 11/4—Dallas Co., Court House, Forrest Ave. bridge and road connections to Bonnie View Rd. $1,722,000. Koch & Fowler, Gr. Natl. Life Bldg., engrs. CD 2/28.

LOW BIDDERS

▲ **Georgia**—State Hy. Dpt., Atlanta, Sept. 29, superstructure for controversial Turtle River Bridge, on Brunswick, Ga.-Jacksonville Fla. Road, movable span, towers, Proj. FI-009-2(6), Glynn Co., from Virginia Bridge Co., 821 Madison Ave. N.E., Roanoke, Va., **$1,726,448**. CD 9/8.

▲ **La., New Orleans**—City Purchasing Div., City Hall Bldg., Sept. 27, overpass on Franklin Ave. at Florida Ave., Proposal 15105; underpass at Franklin Ave. at Benefits St., Proposal 15106, from Keller Constr. Co., 7900 Palno St., **$1,065,000** and **$845,000** respectively. CD 8/31.

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston, Sept. 26, substructure for channel span Charles River Bridge between Boston and Charlestown near Warren Bridge, Contr. A 1, from T. Stuart & Son Co., 70 Phillips Co., 70 Phillips St., Watertown, **$508,791**; superstructure for same, Contr. A 2, from American Bridge Co., 1414 Statler Bldg., Boston, **$766,223**. CD 9/12.

CONTRACTS AWARDED

Calif., Los Angeles—Los Angeles Co., 501 Hall of Records, rein.-con. bridge on San Gabriel River Parkway, C. C. 20-830, Baldwin Park, to Byerts & Sons, 1110 S. Redondo Beach Blvd., **$515,500**. Bids 9/19, awarded 9/26. CD 8/31.

▲ **New York**—Bureau Contracts & Accounts, Albany, 2 grade separation structures over Humboldt Parkway at Main St. and Kensington Ave., Erie Co. to Brunner Asphalt & Constr. Inc., Kingston Ave. and N. Y. C. Belt Line, Buffalo, **$1,988,113**. Bids 8/23. CD 8/25; under LB.

▲ **Washington**—State Hy. Dpt., Olympia, steel truss bridge with rein.-con. girder approaches over Cowlitz River 0.324 mi. Primary State Hy. 12 at Kelso, F.A.P. U-004-2(2), Cowlitz Co., to Peter Kiewit Sons Co., Longview, **$1,352,345**. Bids 9/26. CD 9/11.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

October 17
Indiana
Virginia
October 18
Louisiana
Michigan
Virginia
October 19
Kansas

October 20
Illinois
October 24
New Jersey
Wisconsin
October 25
California
October 26
California

† **Mass., Pittsfield**—B.A. 10/17—Officer in Charge of Constr., First Naval Dist. At Office Headquarters, 495 Summer St., Boston, road resurf., incl. approx. 6,650 sq. yd. b. conc. over existing c. conc. pavement, 1,000 sq. yd. b. macad. surf., penetrated crushed stone base, raise 36 c.i. frames and volve boxes for new pavement, at U. S. Naval Industrial Reserve Ordnance Plant 2 (General Electric Co.), Spec. 25566. Plans deposit $10.

Puerto Rico, Rio Piedras—B.A. 11/1—Board Awards, Dpt. Interior, San Juan, constructing 0.79 km Proj. U-1-1 (3) San Juan-Caguas Road (Ramal Sur Avenue). Plans deposit $20. CD 9/24/45.

▲ **Tex., Dallas**—B.A. 11/4—Dallas Co., Court House, Inwood-Hampton Rd. connection through West Dallas, incl. exten., wid'n., paving, bridges. **$4,750,000**. Koch & Fowler, Gr. Natl. Life Bldg., engr. CD 1/27.

LOW BIDDERS

▲ **Colorado**—State Hy. Dpt., Denver, Sept. 26, grading, ballast and minor structures 10.719 mi. located on Denver Boulder Turnpike beginning at 28 St. and Baseline Rd. southeast of Boulder and exten. southeasterly to Broomfield. Boulder and Jefferson Counties, from Peter Kiewit Sons Co., 1950 S. Colorado Blvd., **$1,066,766**.

▲ **Pennsylvania**—State Hy. Dpt., Harrisburg, Sept. 29, 3.08 mi. of divided highway, rein.-con. 24 ft. wide on each side of 4 ft. concrete divisor, incl. bridge over Wallace Run, one over an unnamed stream and new bridge to carry Pennsylvania R. R. over the highway, T. R. 18, in Big Beaver Twp., city of Beaver Falls, Homewood and Koppel Boros, Beaver Co., from B. Perini & Sons, Inc., 73 Montwait Ave., Framingham, Mass., **$2,967,108*****bit. surf. pavement 2.3 mi. U. S. 11, in Lemoyne and New Cumberland Boros, Cumberland Co., from Tioga Constr. Co., Box 509, Lancaster, **$78,125*****wid'n. to 20 ft. and replacing portions of the present 16 ft. pavement on T. R. 49 in Westfield and Dearfield Twps., bit. surf. 4.67 mi., incl. rein. culvert box over Brace Hollow Run and one over Inscho Run, wid'n. bridge over Purple Creek and construct 18 ft. rein.-con. bridge over Skinner Run, Tioga Co., from J. Paul Laubach, Box C, Benton, **$401,650**. CD 9/14.

CONTRACTS AWARDED

California—State Div. Hys., Sacramento, plant mix on untreated rock surf., apply seal coat 4 mi. between Hot Springs Canyon and Tequepis Canyon, Santa Barbara Co., to J. A. Payton Riverside, **$548,439**. Bids 9/20. CD 9/26, under LB.

Maryland—State Rds. Comn., Baltimore, Zone 2, crusher run sub-base, penetration macad. base, b. conc. base, surf. course 3.527 mi. divided hy. along relocation U. S. Rte. 240, Washington National Pike, Contr. F 425-13-615 and M 383-4-315, Frederick and Montgomery Counties, to Dutcher Constr. Corp., Queenstown, **$924,196**. Awarded 9/29. CD 9/25.

▲ **New York**—Bureau Contracts & Accounts, Albany, 6.4 mi. Ontario Thruway, Cayuga Co., to Baughman & Blair, Inc. and Potter-De Witt Corp., Pavilion, **$3,568,305**. Bids 9/2. CD 1/13/46.

▲ **New York**—Bureau Contracts & Accounts, Albany, 4.02 mi. Northern-Sagtikos State Parkway, Suffolk Co., to Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, **$1,343,707**. Bids 8/23. CD 8/25, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Missouri**—B.A. 10/17—U. S. Eng., 300 Broadway, Little Rock, Ark., levee drainage structures, pumping station, East Poplar Bluff Flood Protection, Black River, CIVENG 03-050-50-97. Extended date. CD 7/28.

Pennsylvania—B.A. 10/17—Dpt. Forests & Waters, 405 Education Bldg., Harrisburg, imprv. work in channel of Tunungwant Creek, incl. 415,000 cu. yd. channel excav., 82 cu. yd. rein.-con., 12.2 acres seeding and 260 sq. yd. dumped riprap, McKean Co. Plans deposit $4 R. J. Gillis, c/o owner, ch. engr.

† **Arkansas**—B.A. 10/18—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., 600,000 cu. yd. new levee and ditch excav. Approx Levee Stations 27/2-31/18 Mound, R-200 SFR; bridge constr., driving timber piling, 90 lin. ft., Station 29/8 590,000 cu. yd new levee and ditch excav. Approx. Levee Stations 31/18-35/0 Alexander, R-197 SFR; bridge constr. driving timber piling 180 lin. ft. Approx. Levee Station 31/43 and 33/37, along the right bank of St. Francis River in Green Co. about 15 mi. northeast of Paragould, work beginning at point about 9 mi. east of Marmaduke and exten. downstream distance of approx 7¹⁄₂ miles, St. Francis Drainage Dist., Clay and Greene Counties, Serial No. CIVENG-40-041-51-40.

† **Kentucky**—B.A. 10/18—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., imprv. to concrete floodwall, earthen levee, appurtenant structures, 140,000 cu. yd. embankment Item No. L-932 Reach No. 2, along the left bank of Mississippi River in Hickman, beginning at lower end of floodwall work, exten. downstream 0.8 mi. to jct. of Hickman City levee with Reelfoot levee, CIVENG 40-041-51-33.

Louisiana—B.A. 10/19—Bd. Levee Comrs., Civil Courts Bldg., New Orleans, approx. 1,480 lin. ft. wooden revetment, repairing 2,190 lin. ft. wooden revetment, topping approx. 8,000 lin. ft. levee all in Bohemia Spillway Area, Plaquemines Parish.

† **Minnesota**—B.A. 10/19—U. S. Eng., 1217 U. S. P. O. and Custom House, St. Paul, Zone 1, removal, disposal fill material between lower guide wall and bluff at Lock and Dam 1, on right bank Mississippi River, downstream from Ford Rd. Hy. Bridge in Minneapolis.

† **South Carolina**—B.A. 10/19—U. S. Eng., Customhouse, Charleston, maintenance dredging, 27 ft. project at and near Georgetown, Serial No. CIVENG 38-081-51-2. CD 9/5.

† **Texas**—B. A. 10/19—U. S. Eng., foot of Prytania St., New Orleans, La., levees-drainage structures, incl. 130,000 cu. yds. semi-compacted earthwork, Inv. No. 51-40. $50,000.

† **Washington**—B.A. 10/19—Bureau Reclamation, Dpt. Interior, Ephrata, earthwork, concrete lining, Station 255 plus 85.56 to Station 326 plus 90, Main Canal, Columbia Basin Proj., approx. 7 mi. south of Coulee City. Spec. 3190. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **Illinois**—B.A. About 10/20—U. S. Eng., 808 U. S. Court House and Custom House, St. Louis, 1, Mo., levees, Miller Pond Drainage Dist., Proj. Item I-A (2), Union Co., approx. 2 mi. east of Ware, Inv. No. CIVENG—23065-51-14.

† **Idaho**—B.A. 10/20—U. S. Eng., 4835 E. Marginal Way, Seattle, Zone 4, Wash., levee repairs along Kootenai River between Bonners Ferry and Canadian border, Serial No. CIVENG-45-108-51-18.

▲† **Tex., Roma**—B. A. 10/20—International Boundary & Water Comn., U. S. A. and Mexico, 1st. Natl. Bank Bldg., El Paso, earth rolled type, 152 ft. above river bed, 19,000 lin. ft. long, Falcon Dam, near here, $30,000,000, Plans deposit $100; electric power plant in connection with Falcon Dam Proj., $15,000,000. Plans deposit $50. Richard B. Ward, c/o owner, engr. CD 8/25.

† **Alabama**—B.A. About 10/24—U. S. Eng., P. O. Box 1169, Mobile, Zone 7, drilling well at Demopolis Lock and Dam, on Tombigbee River, approx. 2.4 mi. west of Demopolis, 3.6 mi. below the confluence of Tombigbee and Warrior Rivers and 3.2 mi. below the existing Dam No. 4, Marengo Co., Serial No. CIVENG-01-076-51-24. CD 11/24/43.

† **Oregon**—B.A. 10/24—Bureau Reclamation, Dpt. Interior, Bend, Ore., clearing timber and brush along roads in Wickiup Reservoir area, Deschutes Proj., 8 to 15 mi. west of Lapine. Spec. 100C-105.

† **Washington**—B.A. 10/25—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, right bank imprvt. at Mud Mountain Dam, White River, Enumclaw, Serial No. CIVENG-45-108-51-19. CD 8/28.

† **California** — B.A. 10/26 — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Lindsay, Calif., pumping units for installation at L3 and L4 pumping plants; laterals 93.2W, 93.2E and 93.2E-0.1S, Unit 3, Lindmore irrigation district, Friant-Kern Canal Distribution System, Central Valley Proj., Spec. DS-3205. L. N. McClellan, ch. engr.

† **Idaho**—B.A. 10/26—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., raising widn. levee, and filling borrow pits on left bank of Snake River, beginning at Station 246 plus 50 thence downstream to Station 278 plus 00, located approx. 2¹⁄₂ mi. north of Ririe, Jefferson Co., Serial No. CIVENG-45-164-51-23. CD 4/21/44.

LOW BIDDERS

▲† **Arizona-California-Nevada**—Bureau Reclamation, Dpt. Interior, Boulder City, Nev., Sept. 28, installing turbines, transformers, appurtenant equipment for Units A3; A4 and A9; relocation transformer bank Y, constr. addnl. transformer circuit and terminal facilities for Hoover switchyard at Hoover Power Plant, from C. M. Elliott & John C. Gist, Redding, Calif., **$1,768,189**, Est. $1,387,534. CD 8/25.

AIRPORTS

BIDS ASKED

N. Y., Idlewild—CONTROL TOWER FOUNDATIONS—B.A. 10/16—At office Chief Engineer Port of New York Auth., 111 8th Ave., New York, Zone 11, Contr. NYA-143, permanent control tower foundations, New York International Airport. Plans deposit $10. CD 8/17.

† **Va., Norfolk**—OFFICERS CLUB—B.A. 10/18—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Zone 11, exten. officers club at Naval Air Station. Spec. No. 25115. Plans deposit $10.

† **Fla., Jacksonville**—FUEL SYSTEM—B.A. 10/19—Yards & Docks Annex, Navy Dept., Arlington, Va., rehabilitating, exten. aviation fuel sys. incl. earthwork, concrete pits, pipe lines, pumps, valves and electrical work at Naval Air Station, Spec. 25561. Plans deposit $10. CD 9/25.

† **N. Y., Brooklyn**—STORM SEWERS—B. A. 10/19—Pub. Wks. Office, 90 Church St., New York, Zone 7, repairing storm sewers under runways, U. S. Naval Air Station, Floyd Bennett Field, NOY 19965, Spec. No. 23588.

† **Colo., Denver**—BUILDING, etc.—B.A. About 10/24—U. S. Eng., 909 17 St., Zone 2, 2 story, 50x170 ft., and 2 story 40x183 ft. building, necessary connections to existing water, sewer, heating and electrical facilities for each of these buildings at Lowry Air Force Base, Eng. 25-066-51-17.

AMERICANS ABROAD

Greece—State Electric Utility Co., Greek Government, Athens, awarded contract two 30,000 kw. units steam power plant with lignite loading plant, on Island of Euboea to Foundation Co., 57 William St., New York 5, N. Y., U. S. A., and Burns & Roe, 233 Broadway, New York 7, N. Y., U. S. A. **$12,000,000-$14,000,000.** CD 8/25.

LATIN AMERICA

Mexico, Neuvo Laredo—Dpt. P. Wks. & Comn., Hydraulic Resources Ministry, Mexico City, Mexico, receives bids Oct. 30, construct Republic of Mexicos part of Falcon Dam, across Rio Grande River, electric power and irrigation proj. $18,000,000. Dpt. P. Wks. Eng. Dpt., Mexico City, engr.

Mexico, Neuvo Laredo—Mexican National Railways (Dpt. P. Wks. & Transportation) Mexico City, awarded contract masonry railway passenger and freight station to Compania Constructora Mexicana, Mexico City, **$850,000.**

Venezuela—Govt. of Venezuela, Caracas, awarded contract 3 tunnels in proposed express highway between Caracas and port of LaGuaira, to Morrison-Knudsen Co., Inc., 122 E. 42 St., New York 17, N. Y., U. S. A. Approx. **$15,000,000.** CD 6/18/48.

PUBLIC BUILDINGS

BIDS ASKED

N. J., Union—SCHOOL—B.A. 10/16—Bd. Educ., Union, Franklin School addn., Walker Rd.

N. Y., Merrick—SCHOOL—B.A. 10/16—Bd. Educ., Union Free School Dist. 25, 108 Merrick Ave., grade school, Merrick and Babylon Rds.

Ont., Rockland—SCHOOL—B.A. 10/16—L. Regnier, secy. Separate School Bd., Rockland, 14-classroom school, Approx. $275,000. Plans deposit $15. L. Leblanc, 428 Rideau St., Ottawa, archt.

Ill., Downers Grove—SCHOOLS—B.A. 10/17—School Dist., 58 Forest Ave Whittier and Longfellow Schools. $300,000. Perkins & Will, 309 W. Jackson St., Chicago, Zone 6, archts. CD 6/6.

Ill., Kankakee—SCHOOL—B.A. 10/17—School Dist. 11, 1318 Cobbs St., 2 story, bsmnt., rein.-con., brick, stone Franklin School. $300,000. Plans deposit $30. Childs & Smith, 20 N. Wacker St., Chicago, Zone 6, archts. CD 9/22.

Ind., Valparaiso—SCHOOL—B.A. 10/17—Bd. School Trustees, O. R. Burns, secy., High School Bldg., 1 story, 59x206x78x87 ft., brick, rein.-con., structural steel school. $250,000. Plans deposit $25. W. S. Homes, 2200 Olds Tower, Lansing, Mich., archts. CD 6/19.

Md., Easton—SCHOOL—B.A. 10/17—Talbot Co. Bd. Educ., Washington and Court Sts., Easton Junior-Senior High School. $700,000. Plans deposit $25. Extended date. Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, archts. J. L. Faisant & Assoc., 21 W. 25 St., Baltimore, struct. engrs. Egli & Gompf, Inc., 1019 N. Calvert St., Baltimore, mech. engrs. CD 9/25.

† **N. Y., Dunkirk**—CLASSROOM, etc.—B.A. 10/17—Pub. Wks. Office, Third Naval Dist., Federal Office, 90 Church St., New York, 7, N. Y., installing classrooms, Naval Reserve Training Center, Spec. 25275.

† **N. Y., Dunkirk**—TRAINING CENTER—B.A. 10/17—Pub. Wks. Office, 90 Church St., New York, Zone 7, training center alterations.

▲ **N. Y., Flushing**—HOUSING—B.A. 10/17—New York City Housing Auth., 63 Park Row, New York, Zone 7, foundations and general constr., heating and ventilating, electrical work, plumbing and elevators for Flushing Houses (Proj. NYS 52) Long Island R. R., Lawrence St., Roosevelt Ave., Prince St., and westerly portions at 40 Rd. Main St., and Long Island R. R., Queens Boro. Extended date. Plans deposit $75, elevators $25. CD 9/14.

▲ **N. C., Fayetteville**—HOUSING—B.A. 10/17—Fayetteville Housting Auth., c/o Basil G. F. Laslett, archts., Fayetteville, housing units, Proj. N. C. 9-3, $1,200,000.

Del., Wilmington—SCHOOL—B.A. 10/18—Richardson Park School Dist., Richardson Park, school $500,000. G. Morris Whiteside 2nd du Pont Bldg., archts. CD 4/28.

† **D. C., Wash.** — LABORATORY — B.A. 10/18 — Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, modernizing Metal Processing Laboratory Bldgs. 3 and 4 Spec. 25509. Extended date. CD 9/29.

Mass., Falmouth—SCHOOL—B.A. 10/18—Town, Selectmen Office, Town Hall, 1 and 3 story, bsmnt., brick, Junior and Senior High School, Chute Estate. $300,000. Plans deposit $50. S. W. Haynes & Assoc., 336 Main St., Fitchburg, archts.

Mich., Coldwater—LAUNDRY—B.A. 10/18—State, A. N. Langius, dir. Bldg. Dpt., 115 State Office Bldg., Lansing, 1 story, brick laundry, for Coldwater State Home and Training School, $68,000. Harley, Ellington & Day, 153 E. Elizabeth St., Detroit, archts. CD 9/21.

Mo., Springfield—SCHOOL—B.A. 10/18—School Dist., A. R. Stewart, secy-treas. Bd. Educ., 940 N. Jefferson Ave., brick, rein.-conc. Southeast School, 1500 S. Delaware St. Plans deposit $25. Johnson & Robinett, Assoc. archts. & Engrs., 1042 Landers Bldg. CD 6/6.

N. Y., New York—WELFARE CENTER—B.A. 10/18—Dpt. P. Wks., Municipal Bldg., Zone 7, general contract; plumbing; heating and ventilating; electrical work for construction Harlem Welfare Center, Park Ave. and E. 131 St., Manhattan Boro. Plans deposit $25. CD 3/30.

▲ **N. Y., Ogdensburg**—HOUSING—B.A. 10/18—Ogdensburg Municipal Housing Auth., City Hall, housing Proj. NYS 54. $1,250,000. Plans deposit $25. Beardsley & Beardsley, 64 South St., Auburn, archts.

† **N. Y., Patchogue**—LABORATORY—B.A. 10/18—Brookhaven National Laboratory, P. O. Box 130, Patchogue, altering Engineering Laboratory Bldg. 480. $180,000.

O., Youngstown—HOSPITAL—B. A. 10/18—S. O. Linzell, dir. Dpt. P. Wks., Ohio Depts. Bldg., Columbus, 120 bed Youngstown Receiving Hospital addn., 800 E. Indianola Ave. $900,000. Arsene Rousseau, 213 Mahoning Bank Bldg., archt. H. G. Allen, c/o owner, consult. archt. CD 11/14/49.

Pa., Muncy—COTTAGE DORMITORIES—B.A. 10/18—General State Auth., 18 and Herr Sts., Harrisburg, general contract, heating, plumbing, electrical work, for construction cottage dormitories for inmates at Muncy Industrial Home. $280,000. R. Douglas Steele, 34 W. 4 St., Williamsport, archt. A. F. Jones, c/o owner, ch. engr. CD 12/21/49.

† **Va., Vint Hill Farms Station**—THEATER—B.A. 10/18—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., 336-capacity theater. Plans deposit $15.

B. C., Courtneay—COURTHOUSE—B.A. 10/18—Minister P. Wks., Parliament Bldg., Victoria, rein.-con. court house. Approx. $350,000. Plans deposit $25. C. Campbell, Parliament Bldgs., Victoria, archts. CD 4/28/49.

B. C., Vancouver—HOSPITAL—B.A. 10/18—Minister P. Wks., Parliament Bldgs., Victoria, tuberculosis hospital, 5 Ave. $600,000. Plans deposit $25. C. Campbell, Parliament Bldg., Victoria, archt.

▲ **Conn., Deep River**—SCHOOL—B.A. 10/19—Regional High School Comn., Raymond Abbey, chn., Regional Bd., Essex, brick, steel, concrete regional high school, Kelsey Hill Rd., Dist. 4, $1,000,000. Plans deposit $30. Ernest F. Sibley, 7 Main St., West Hartford, archt. CD 10/18/49.

Fla., Tallahassee—DORMITORY, etc.—B. A. 10/19—State Bd. Control, W. F. Powers, secy., George Washington Hotel, Jacksonville, 11 story mens dormitory, Bail Horton & Assocs., 2230 Hendry St., Ft. Myers, archts. 3 men's dormitories, Marion I. Manley, 3356 Virginia St., Coconut Grove, Miami, archt.; underground heating service and electric service, Maurice H. Connell & Assoc., 200 Langford Bldg., Miami, engrs., all foregoing at Florida State University. Plans deposit $25; $15; $10 and $10 respectively. Guy C. Fulton, state archt. CD 3/23.

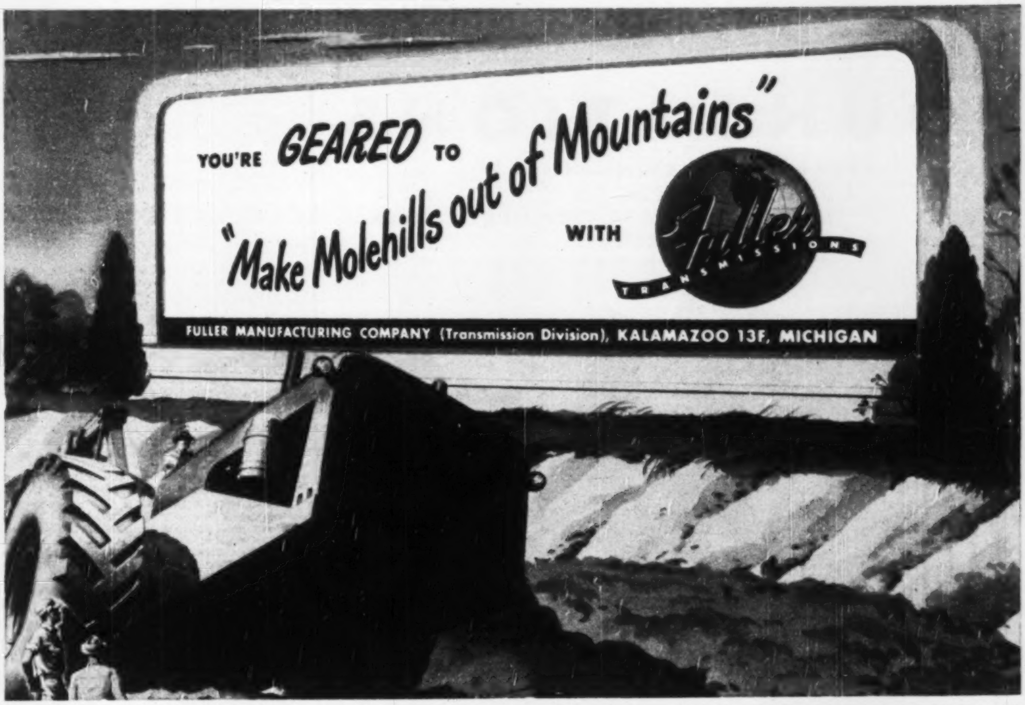
Minn., Fergus Falls — BAKERY — B.A. 10/19 — State, Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, remodeling, equipping bakery, kitchen, dairy plant, bldg. addn., etc. at State Hospital. $500,000. Plans deposit $30. Food Service Equip. Eng. N. B. Persson, 1550 W. Larpenteur Ave., St. Paul, engr. CD 7/11/49.

N. Y., Hempstead—SCHOOL—B.A. 10/19—Bd. Educ., Union Free School Dist. 1, Hempstead, school addn., Franklin St., $370,000. Jagow & Heidenberger, 658 Fulton Ave., archts.

N. Y., New York—HOSPITAL—B.A. 10/19—Dpt. P. Wks. Municipal Bldg., Zone 7, Contr. 1, general contract; Contr. 2, plumbing; Contr. 3, heating, ventilating, air conditioning, refrigeration sys. and boiler plant; Contr. 4, electrical work and lighting fixtures for construction tuberculosis hospital, boiler house, laundry, steward's division, garage and maintenance shops, staff quarters and superintendent's houses in Pelham Parkway South and Eastchester Rd., Bronx Boro. Plans deposit $50 Contr. 1; $25, Contrs. 2, 3, 4. Extended date. CD 9/14.

Pa., Arnold—SCHOOL—B.A. 10/19—Public School Building Auth., 1400 N. Cameron St., Harrisburg, general contract, heating, plumbing, electrical work

(Continued on page 100)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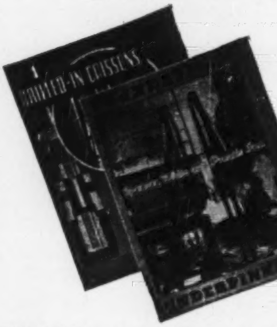

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(Continued from page 98)

to Secondary School addn. for School Dist. of Arnold. $756,000. Plans deposit $25 general contract, $15 each others. The Thayer Co., Greer Bldg., New Castle, archt. W. W. Behrens, c/o owner, ch. engr. CD 1/17/46.

Pa., **Jamestown**—HIGH SCHOOL—B.A. 10/19—Pub. School Building Auth., 1400 N. Cameron St., Harrisburg, general contract, heating, plumbing, electrical work high school addn. for the Pymatuning Joint School Dist. Plans deposit $15 each. Clepper & Mallorie, 72 Vine Ave., Sharon, archts. W. W. Behrens, c/o owner, ch. engr.

Va., **Martinsville**—SCHOOL—B.A. 10/19—Henry Co. Bd. Educ., 65x349 ft. school.

▲ Md., **Rockville**—OFFICE—B.A. 10/20—Montgomery Co., 4 story, brick, rein.-con. Montgomery Co. Office and 3 story health wing, Jefferson and S. Perry Sts. $1,388,500, Ronald Senseman, 327 Carroll St. N. W., Wash., D. C., archt. CD 6/7.

Mass., **Revere**—HOUSING—B.A. 10/20—City Housing Auth., Police Station, Pleasant St., 6 duplex bsmnt., part brick, 84 unit residences, Housing Proj. 200-2, $987,000. Plans deposit $100. Parker J. Brown, 18 Tremont St., Boston, archt. CD 4/8.

Tex., **Sweeney**—SCHOOLS—B.A. 10/20—Sweeney Independent School Dist., Sweeney, 17-room school for whites, $325,000; combination gymnasium-high school for negroes $350,000. Donald Bartholomew & Assocs., 3106 Brazos St., Houston, archts. CD 9/15.

Calif., **Corona**—INSTITUTE FOR WOMEN—B.A. 10/24—State Div. Architecture, P. Wks. Bldg., Sacramento, (1) general contract, (2) electrical work, (3) elevated steel tank and tower, (4) heating and ventilating, refrigeration, outside utilities and plumbing (5) boiler plant equip., 180,000 sq. ft. composed of group rein.-con., some steel frame California Institute for Women buildings. Plans deposit $200. Anson Boyd, Sacramento, state archt. CD 9/12/49.

Calif., **Montebello**—SCHOOL—B.A. 10/24—Montebello Unified School Dist., 123 S. Montebello Blvd., 2 story rein.-con. classroom at Montebello Senior High School, $500,000, Kistner, Curtis, Wright, 816 W. 5 St., Los Angeles, archts.; Grand View School, $250,000. March, Smith & Powell, 208 W. 8 St. Los Angeles, archts. CD 11/9/49.

▲ Calif., **San Francisco**—HOUSING—B.A. 10/24—San Francisco Housing Auth., 440 Turk St., Bernal Dwellings, 208 units composed of 22 three and four story rein.-con bldgs., 20,000 sq. ft. floor space, $2,000,000. Plans deposit $100. Wm. G. Merchant, 57 Post St., archt. Walter Steilberg & C. S. King, 1045 Sansome St., engrs. CD 7/19/49.

† Wash, **Fort Lewis**—QUARTERS—B.A. 10/24—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, three 8-family row-type family quarters and one 6-family row-type quarters with site clearing and grubbing, overlot grading, utilities, street, etc. at Madigan General Hospital, Serial No. ENG-45-108-51-39. Plans deposit $10. CD 8/13/48.

Calif., **Baldwin Park**—SCHOOLS—B.A. 10/26—Baldwin Park School Dist., 14424 E. Holt St., Burch and Elwin Park Schools addn. $270,000. Kistner, Curtis, Wright, 816 W., 5 St., Los Angeles, archts. CD 5/4.

▲ **Puerto Rico**—HOUSING—B.A. 10/31—Municipal Housing Auth., of the Capital of Puerto Rico. Caserio San Antonio, Avenida Fernandez Juncos, Puerta de Tierra, 556 dwelling units in 26 rein.-conc. apartments, incl. utilities and site imprvs. Proj. PR 2-9-3. Plans deposit $150. CD 9/25.

† Wash., **Richland**—HOUSING—Bids Asked—General Eelctric Co., prime contractor to U. S. Atomic Energy Comn., for operation of Richlanc and Hanford Works, rehabilitation 662 pre-fabricated houses $600,000. CD 9/26.

LOW BIDDERS

▲ Ill., **Chicago**—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, 4 apartments, Calumet Ave., 26 St., Prairie Ave., from S. N. Nielson Co., 3059 Augusta Blvd., Chicago, **$2,767 000**.

▲ Ky., **Louisville**—HOUSING—Louisville Municipal Housing Comn., York St., Zone 2, Oct. 3, South Housing Proj. Ky 1-5, from George H. Rommel Co., 958 Logan St., Zone 3, **$6,846,000**. Bids 9/12 rejected. CD 9/27.

N. J., **Asbury Park**—HOUSING—Asbury Park Housing Auth., 76 family low-rent public housing on 5-acre site east of Asbury Park Village, from Gumina Bldg. Co., Laech Ave., New Brunswick, **$758,917**. CD 9/12.

N. C., **Kinston**—BUILDINGS—State Board Correction & Training, Sam Leonard, comr., Raleigh, 5 buildings at Dobbs Farm, from Crain & Denbo, Inc., Durham, **$588,520**. A. J. Maxwell, Jr., Borden Bldg., Goldsboro, archt.

▲ N. C., **Winston-Salem**—HOUSING—Winston-Salem Housing Auth., 1205 Reynolds Bldg., Sept. 26, general contract 41 buildings, 178 units plus a commercial bldg., from Fowler-Jones Constr. Co., Reynolds Vldg., **$1,635,351**. CD 9/1.

R. I., **Cranston**—SCHOOL—City, Supt. Schools, Park Ave., Sept. 27, 1 story brick, steel school, Eden Park, from E. Turgeon Co., 42 Weybosset St., Providence, **$688,000**. CD 9/13.

Tex., **Corpus Christi**—HOSPITAL—Memorial Hospital, 2606 Morgan St., Sept. 29, general contract 7 story 150-bed Memorial Hospital addn., from Lawless & Alford, Box 1248, **$778,778**.

▲ Tex., **Houston**—HOSPITAL, etc.—University of Texas, Texas Medical Center, M. D. Anderson Foundation, 2310 Baldwin St., Sept. 28, 7 story main bldg., rein.-con. frame and fdn., brick, stone, hospital for cancer research, air conditioning, etc. and 5 story, bsmnt., rein.-con. frame and fdn., brick, stone outpatient bldg., air-conditioning, etc., from Farnsworth

& Chambers, Inc., Box 74, **$5,210,185**, est. $3,250,000 and **$2,385,000**, est. $1,750,000 respectively. CD 8/18.

CONTRACTS AWARDED

Calif., Berkeley—BIO-CHEMISTRY—Bd. Regents, University of California, Berkeley, general contract 5 story, 60x200 ft. rein.-con. virus and bio-chemistry bldg., to Parker, Steffens & Pearce, 135 S. Park St., San Francisco, **$711,111**. Bids 8/16. CD 8/22 under LB.

Calif., Long Beach—SCHOOL—City Bd. Educ., 715 Locust Ave., David Starr Jordan High School, to Thomas E. Norcross, 6053 Atlantic Ave., Long Beach, **$674,310**. Bids 9/19, awarded 9/18. CD, 9/27, under LB.

▲ **Calif., Los Angeles**—ADMINISTRATION—Bd. Regents, University of California, 405 Hilgard Ave., 4 story, 68,000 sq. ft. administration bldg. addn., to R. J. Daum Constr. Co., 6803 West Blvd., Inglewood, **$1,298,254**. Bids 9/15. CD 9/27, under LB.

▲ **Calif., San Jose**—SCHOOL—San Jose Unified School Dist., 408 Almaden St., 1 and 2 story, rein.-con., steel Senior High School, to Williams & Burrows, Inc., 10 California Dr., Burlingame, and Carl N. Swenson Co., Box 558, **$2,721,200**. CD 8/23.

▲ **Del., New Castle**—SCHOOLS—New Castle Del. School Dist., 2 schools, to Ernest Di Sabatino & Sons, Inc., 2601 W. 4 St., Wilmington, **$1,031,350**. CD 8/31, under LB.

▲ **Ga., Athens**—LIBRARY—Bd. Regents, University System of Georgia, c/o Cooper, Bond & Cooper, archts., Henry Grady Bldg., Atlanta, library at University of Georgia, to Virginia Eng. Co., Newport News, Va., **$1,453,000**. Bids 8/3. CD 8/10, under LB.

Kan., Kansas City—SCIENCE—State Bd. Regents, Topeka, general contract basic science bldg. at University of Kansas Medical Center, to Dreier & Son Constr. Co., 1123 Quindaro St., Zone 4, **$596,466**. Bids 9/14. CD 9/25.

▲ **Md., Baltimore**—SCHOOL—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, 3 story, 87x400 ft. Edison Boys Vocational School; 3 story, 200x280 ft. Morganthaler Printing School; 3 story, 135x145 ft., Barton Girls Vocational School and boiler plant, 2 story, 150x340 ft., brick, concrete, cinder block, steel Music School, Gymnasium and Pool, Hillen Rd. and 36 St., to Jos. F. Hughes & Co., Inc., 511 N. Charles St., Zone 2, **$6,188,266**. Est. $6,000,000. Bids 9/20, awarded 9/28. CD 9/22, under LB.

Md., Owings Mills—POWER PLANT—State Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, power plant addn., alterations, Rosewood State Training School, to Chas. T. King, 1017 Cathedral St., Baltimore, **$603,062**. Bids 9/6, awarded 9/29. CD 9/14, under LB.

† **Mich., Bad Axe**—BUILDINGS—U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill., misc. bldgs., to Ashland Constr. Co., 6808 N. Clark St., Chicago 26, Ill., **$800,000. Awarded 9/12.**

Pa., Mount Lebanon—SCHOOL—Bd. Educ., Mount Lebanon Twp., 735 Washington Rd., Pittsburgh, Zone 16, 1 and 2 story, irregular, 83x175 ft., 61x205 ft., brick, tile school, Mt. Lebanon Twp., Pittsburgh, Zone 16, to B. Zambrano Co., 5914 Baum Blvd., Pittsburgh, Approx. **$795,000**. CD 9/29, under LB.

Pa., Somerset—DIETARY—General State Auth., 18 and Herr Sts., Harrisburg, general contract dietary bldg. at Somerset State Hospital, to Mayer Bros., 2605 Beale Ave., Altoona, **$510,000**. Bids 9/20, awarded 9/29. CD 9/25, under LB.

Tex., Dallas—HIGH SCHOOL—Dallas Independent School Dist., Akard and Royal Sts., Rusk Junior High School, Inwood Rd. and Denton Dr., to J. E. Morgan & Sons, 6010 Forest Park Rd., **$852,781**. Bids 9/26. CD 10/4, under LB.

Tex., Hebbronville—SCHOOL—Jim Hogg Independent School Dist., Hebbronville, school addns., remodeling, to Vaello Sales Co., Inc., Benevides. **$503,609**. Bids 9/3. CD 9/27, under LB.

Wash., Seattle—POWER PLANT IMPRVS.—P. R. Hendricks, city purch. agt., County-City Bldg., 192-in. butterfly valves for units 42, 43 and 44, Ross Power Plant, to Newport News Shipbuilding & Drydock Co., Newport News, Va., **$607,500**; cabin-actuator type governors, to Woodward Governor Co., Rockfort, Ill., **$123,090** Bids 8/15. CD 6/23.

▲ **Que., Hull** — PRINTING BUREAU — Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., superstructure of Federal Printing Bureau, to Concrete Constr. Co., 1082 Decarie Blvd., Montreal. Approx. **$1,771,216**. Bids 8/23. CD 8/30, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Ont., St. Catherines—HOSPITAL—B.A. 10/16—The Religious Hospitalliers of St. Joseph of Kingston, c/o Sister Mary Immaculate, 158 Ontario St., 5 story, 48x195 ft. front wing, 50x120 ft. rear wing, subbsmnt., penthouse, rein.-con., brick Hotel Dieu Hospital, rein.-con. fdn., separate laundry, heating and service bldg. Chester C. Woods, 12 Richmond St., Toronto, archt. CD 1/7/49.

Md., Baltimore—CHURCH—B.A. 10/17—Holy Rosary R. C. Church, Rt. Rev. Msgr. S. A. Wachowiak, 408 S. Chester St., 4 story, bsmnt., brick, concrete, steel school and 3 story, bsmnt., brick, concrete, steel convent, 400 block Chester St. Plans deposit $50. Palmer, Fisher, Williams & Nes, 1020 St. Paul St., archts. Van Rensselaer Saxe, 100 N. Monument St., struct. engr. Egli & Gompf, Inc., 1019 N. Calvert St., mech. engr. CD 3/28.

N. Y., Ithaca — LABORATORY — B.A. 10/17 — Cornell University College of Engineering, Ithaca, testing laboratory, Shreve, Lamb & Harmon, 11 E. 44 St., New York, Zone 17, archts.

D. C., Wash.—OFFICE—B.A. 10/18—Holabird, Root & Burgee, archts, 180 N. Wabash Ave., Chicago, Ill., national headquarters bldg. and garage for International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America, 2221 E. Michigan St., Indianapolis, Ind., Approx. $250,000. Extended date. CD 9/27.

Mich., Grand Rapids—HOSPITAL—B.A. 10/19—Blodgett Memorial Hospital, H. B. Tuthill, pres. Bd. Trustees, 1840 Wealthy St. S. E., brick, steel hospital addn., alterations. $250,000. Extended date. Lewis J. Sarvis, 250 Champion St., Battle Creek, archt. CD 9/12.

Ill., Westchester—SCHOOL—B.A. 10/20—Divine Infant Jesus Parish, Kent St., 2 story, brick, stone school. $250,000. Thos. Edward Cooke, 228 N. LaSalle St., Chicago, Zone 1, archt.

Ky., Lexington—HOSPITAL—B.A. 10/20—Good Samaritan Hospital, 210 Limestone St., hospital addn. $748,130. Bids Aug. 2 rejected. L. B. **$748,130**. John Gillig, 180 Walnut St., archt. CD 8/14, under L.B.

▲ **Pa., Phila.** — SCHOOL — B.A. 10/20 — University of Pennsylvania, 209 S. 36 St., Wharton School. $2,000,000. McKim, Mead & White, 101 Park Ave., New York, N. Y., archts. CD 2/15.

La., New Orleans—NOVITIATE—B.A. 10/24—Sisters of St. Joseph, 2116 Ursuline Ave., 2 story, rein.-con. frame on creosoted piles, brick novitiate bldg. Plans deposit $30. Bodman & Murrell, 713 Reymond Bldg., Baton Rouge, archts.

▲ **Ala., Birmingham**—OFFICE—Bids Asked—Pentagon Corp., E. W. Shahid, (owner) c/o Wilmot C. Douglas, archt., 226 N. 14 St., 10 story, concrete, steel, air conditioned doctors and dentists office bldg., Cottonwood and 10 Ave. S. $1,000,000. CD 9/27.

Mich., Birmingham—CHURCH—Bids Asked—First Methodist Parish, Rev. Dr. Arnold F. Runkel, 552 Madison St., 1 story, bsmnt., brick, stone church, W. Maple and Pleasant Sts. $600,000. Andrew R. Morrison, 713 Fox Bldg., Detroit, archt.

▲ **Tex., Dallas**—OFFICE—Bids Asked—Leo F. Corrigan, Mercantile Bank Bldg., 17 story, bsmnt. office. $5,000,000. Wyatt C. Hedrick, 904 Fort Worth Ave., engr. and archt. CD 1/3.

SOON LETS CONTRACT

Mass., Andover—GYMNASIUM—Phillips Academy, Bldgs. & Grounds Comn., Salem St., soon lets contract 2 story, 192x196 ft., gymnasium 2 swim pools and alterations at Phillips Academy. $900,000. Eggers & Higgins, 542 Fifth Ave., New York, N. Y., archt. R. D. Kimball Co., 6 Beacon St., Boston, engrs. CD 9/28.

▲ **Tex., Dallas**—OFFICE—Republic National Bank, 1515 Main St., soon lets contract bank and office bldg. $15,000,000. Harrison & Abramovitz, 45 Rockefeller Plaza, New York, N. Y., archts. CD 6/23.

LOW BIDDERS

▲ **N. J., Princeton**—HOSPITAL, etc.—Princeton Hospital, 253 Witherspoon St., hospital addns., alterations, from Mathews Cnstr. Co., 296 Alexander St., **$1,114,000**. CD 8/31.

▲ **Pa., Pittsburgh**—HOSPITAL—St. Margaret's Memorial Hospital, 265 46 St., Sept. 9, 4 story, bsmns., brick steel hospital addn. 46 St. from Navarro Corp., 6219 Broad St. Approx. **$1,000,000**. CD 9/7.

Tex., Fort Worth—RESIDENCES—Arlington Heights West Corp., 200 Houston St., 200 one story frame residences on 5000 and 5100 blks. of Pamela Dr., from J. D. Teague, 3207 N. Crump St., Approx. **$600,000**.

CONTRACTS AWARDED

▲ **Calif., Arcadia**—DWELLINGS—Tyler-Oaks Inc., 9244 W. Olympia St., Los Angeles, 200 stucco dwellings in Wildflower, Rd., Frier and Miloann Sts., Maple Tree, Hubbard and Lenore Aves., to P. L. Pierce, 9244 W. Olympic Blvd., Approx. **$1,391,600**. David Freedman, 407 Commercial Center Beverly Hills, archts.

Calif., Los Angeles—OFFICE—Gershon-Scott Corp., 6399 Wilshire Blvd., 10 story, 100,000 sq. ft., rein.-con. office, to L. E. Dixon Co., 409 S. California St., San Gabriel, Approx. **$1,500,000**. Bids 8/28. CD 8/16.

Calif., Ontario—DWELLINGS—C & M Homes, 1501 Mission St., South Pasadena, 112 dwellings Owner builds, **$750,400**. James I. Presnell & Assoc., 1501 Mission St., South Pasadena, archts.

Mass., Springfield—OFFICE—Springfield (Mass.) Fire & Marine Insurance Co., 195 State St., 4 story office and garage, 1250 State St., to Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y., Approx. **$500,000**. Cram & Ferguson, 248 Boylston St., Boston, archts. CD 1/19.

▲ **Minn., St. Louis Park**—APARTMENTS—Minikahda Court Apartments, c/o contractor, twelve apartment bldgs. of 120 dwelling units north of Excelsior Ave. and west of France St. to Johnson, Drake & Piper, 1138 Baker Bldg., **$1,000,0000**, Tecnico, 1550 W. Larpenteur Ave., St. Paul, archt.

▲ **N. J., Haworth**—HOUSES—James D' Agostino, c/o Frederick W. Harsen, archt., Summit St. and E. Railroad Ave., Tenafly, 100 one family houses on tract west of Knickerbocker Rd. Owner builds. **$1,500,000**.

▲ **N. J., Maple Shade**—RESIDENTIAL DEVELOPMENT—Maple Shade Constr. Co., 1423 Spring Garden St., Phila., Pa., residential development, Moorestown Pike, separate contracts. **$4,000,000**. Edward A. L. Cox, 709 Market St., Camden archt.

▲ **N. Y., Bayside**—APARTMENTS—Bell Associates, c/o A. H. Saikowitz, archt., 37-60 82 St., Jackson Heights, 35 three and seven story apartments, on site bounded by Springfield Blvd., 217 St., 73 and 75 Aves. and 13 one story garages, separate contracts. **$6,000,000**. CD 6/9.

N. Y., Bronxville—APARTMENT—Bronxville Knolls, Inc., c/o Behrens, Robertson & Behrens, archts., 420 Lexington Ave., New York, Zone 17, garden apartments, on 13-acre site, Midland Ave. Owner builds. approx. **$500,000**. CD 6/22.

N. Y., Brooklyn—APARTMENT—Ray Berfond, 3036 Avenue U, Zone 29, 6 story apartment, 302-326 96 St. Owner builds. **$760,000. CD 6/29.**

▲ **N. Y., Elmhurst**—APARTMENT—Larch Realty Corp., c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, 78 St. and Woodside Ave. Owner builds. **$1,150,000**. CD 6/15.

▲ **N. Y., Flushing**—HOUSES—Campus Hall Apartments, c/o Sohn & Weston, archts., 44 Court St., Brooklyn, Zone 2, 460 two story houses in area bounded by 70 Rd., Melbourne Ave., Parsons and Kissena Blvds. Owner builds. **$5,000,000. CD 6/9.**

▲ **N. Y., Forest Hills**—APARTMENT—Kalikow Constr. Corp., 44 Court St., Brooklyn, Zone 2, 6 story apartment, 108 St. and Jewel Ave. Owner builds **$1,100,000**. CD 6/2.

▲ **N. Y., Hastings-on-Hudson**—HOME—Julia Dyckman Andrus Memorial, c/o Leonard, Schultze & Assoc., archts., 119 E. 40 St., New York, Zone 19, 6 story home and infirmary for needy aged, Broadway, to Vermilya Brown Co., Inc., 100 E. 42 St., New York, Zone 17, Approx. **$3,000,000**. CD 8/3.

▲ **N. Y., Jamaica**—APARTMENTS—Morris Pickman, c/o Joseph Schafran, archt., 200 W. 72 St., New York, Zone 23, 3 six story apartments, 85 Rd. and 143 St. Owner builds. **$3,209,000**. CD 5/26.

N. Y., Jamaica—APARTMENT—Wexford Hall, Inc., c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, Midland Parkway and Wexford Terrace. Owner builds. **$870,000**. CD 6/2.

N. Y., Kew Gardens—APARTMENT—Bertram Gardens, c/o Samuel Paul, archt., 163 18 Jamaica Ave., Jamaica, 2 story apartments, 75 Rd., 147 St., 150 St., 76 Rd. and 76 Ave. Owner builds. **$920,000**. CD 6/9.

N. Y., New York—APARTMENT—G. S. B. Building Corp., 391 E. 149 St., Zone 55, 6 story apartment, 49-57 W. 12 St. Owner builds **$500,000**. CD 6/9.

▲ **N. Y., New York**—APARTMENT—Hotel Taft Corp., 119 W. 40 St., Zone 18, apartment, 601 E. 81 St. and 39-49 East End Ave. Owner builds. **$1,770,951**. CD 6/29.

▲ **N. Y., New York**—APARTMENT—Lasaral Realty Corp., 154 Nassau St., Zone 7, apartment, 1694-1710 York Ave. Owner builds. **$1,250,000**. CD 7/7.

N. Y., New York—EXCHANGE—New York Telephone Co., 140 West St., Zone 7, 3 story telephone exchange bldg., alterations, 3050 Curger Ave. to Grove, Shepherd, Wilson & Kruge, Inc., 247 Park Ave., Zone 17, Approx. **$600,000**. CD 6/29.

N. C., Durham—DORMITORY—Duke University, S. W. Myatt, bus. mgr., Durham, general contract graduate men's dormitory, to Wm. Muirhead Constr. Co., Durham, **$981,800**. Bids 9/20. CD 9/28, under LB.

Pa., Phila. — RESIDENCES — Cutler Constr. Co., 1615 Chelten Ave., residential development, Unruh Ave., separate contracts. **$500,000**. S. Sherwin Rochlis, 721 Walnut St., archt.

Pa., Pittsburgh—HOSPITAL—Industrial Home for Crippled Children, 1426 Denniston Ave., 2 story, bsmnt., 160x200 ft., brick, steel hospital addn., to Branna Constr. Co., 406 Bessemer Bldg., Approx. **$708,200**. CD 9/20.

S. D., Huron—HOUSING—Gentle Constr. Co., Huron, 100 housing units. Owner builds. **$850,000**.

Tex., Arlington—DWELLINGS—Browning Constr. Co., 2809 Race St., Fort Worth, 75 dwellings. Owner builds. **$575,000**. CD 6/5.

Tex., Houston—DWELLINGS—A. E. Bailey, 3016 Jarrard St., 100 frame dwellings, concrete slab fdn. in an area of Sunnyside Gardens, own forces. Approx. **$525,000**. CD 8/31.

Tex., Houston—DWELLINGS—W. W. McMillan, 7948 Harrisburg St., 75 dwellings, own forces. Approx. **$565,000**. CD 4/7.

Tex., Houston—DWELLINGS—Meadowbrook Building Co., 7801 Howard Dr., 65 dwellings, near Howard Dr. Owner builds Approx. **$625,000**. CD 9/1.

Tex., Houston—HOUSING—Plantation Development Corp., 4660 Homes Rd., 75 housing units, own forces. **$545,000. CD 5/26.**

▲ **Tex., Houston**—OFFICE—Prudential Insurance Co. of America, Scanlan Bldg., general contract 18 story office, to W. S. Bellows Constr. Corp., 716 N. Everton St., Approx. **$8,000,000**. CD 9/29.

Tex., Houston—RESIDENCES—Stahlman Lumber Co., 4007 Greenbriar St., 50 residences off West Lane Rd. Owner builds. **$875,000**. CD 6/30.

Tex., Houston—DWELLINGS—Phillip G. Willard & Assoc., 3940 Main St., 15 high type, ceramic type, stone, brick dwellings, near here, own forces. Approx. **$600,000**. CD 8/29.

Tex., Pasadena—DWELLINGS—Corporation, c/o Herbert Tatar, c/o Tatar Lumber Co., 7710 Bowie St., Houston, 75 dwellings. Owner builds. **$625,000**. CD 4/28.

Tex., San Antonio—HOUSING—F. M. Pierce & Ogden Klein, Otis West, Brady Bldg., 96 housing units between S. Flores and Military Dr., to M. Barrett

Constr. Co., 1903 Vista Lane, Austin, **$530,000.** CD 6/20.

▲ **Wash., Seattle** — APARTMENT — Queensborough Development Co., Inc., 2017 W. 57 St., 11 story, rein.-con. apartment, day labor, **$1,000,000.** Grainger, Thomas & Baar, Arcade Bldg., archts. CD 7/17/47.

▲ **Wash., Tacoma**—APARTMENT—P. A. Hungate, Tacoma Medical Center, Tacoma, 15 story, rein.-con. Park Towers Apartment, day labor, **$1,150,000.** CD 12/21.

Alaska, Anchorage—APARTMENT—Hillside Manor, Inc., Anchorage, 5 story steel frame apartment, to Don H. Goodman Co., Inc., **Anchorage.** Approx. **$600,000.** Taylor & Kilpatrick, **Anchorage,** archts.

▲ **Alaska, Anchorage**—APARTMENTS—Harry Lewis, Myer Lurie and Melvin Lurie, 3447 4 Ave S. Seattle, Wash., Linda Court and Third Avenue apartments, day labor. **$2,000,000.** G. C. Field, Jones Bldg., Seattle, 1 Wash., archt. CD 8/3.

▲ **T. H., Waikiki Beach**—HOTEL—Matson Navigation Co., 215 Market St., San Francisco, Calif., Surf. Rider Hotel to Hawaiian Dredging Co., 854 Kaahumanu St., Honolulu, Approx. **$1,000,000** CD 7/21.

▲ **Man., Fort Garry (Postal Dist. Winnipeg)**—DWELLINGS—C. T. Lount, 211 Graham Ave., Winnipeg, 220 concrete, brick dwellings, Owner builds, **$1,500,000.**

▲ **Que., Montreal**—APARTMENT—Croydon Realty Corp., 3441 Cote des neiges Rd., concrete, steel, brick, stone apartment. Owner builds. **$1,000,000.** Greenspoon & Assocs., 4151 W. Sherbrooke St. archts.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ill., Greenville—WAREHOUSE, etc.—B.A. 10/17—Southwest Electric Co-operative, Inc., Greenville, warehouse, office garage with all services, drives and parking areas. F. W. Dodge Corp., Chemical Bldg., St. Louis, Mo., archts.

Ore. Portland—WAREHOUSE, etc.—B.A. 10/19—Grinnell Co. of the Pacific Lumbermen's Bldg., 178x252 ft. warehouse and shop, N. W. 29 and Yeon Sts., Richard Sundeleaf, Spalding Bldg., archt.

Tex., Houston—PACKING PLANT—B.A. 10/26—Gulf State Tomato Packing Corp., 301 Louisiana St., 90x320 ft. tomato packing plant. Approx. $650,000. Zimmerman & Bibie, 500 Stuart St., engrs. and archts. CD 9/21.

▲ **Ala., Birmingham**—COKE OVENS—Bids Asked—Sloss-Sheffield Steel & Iron Co., 3131 1 Ave. N., 32 coke ovens at North Birmingham By-products plant, Over $2,000,000. CD 10/5.

Ill., Chicago—WAREHOUSE, etc.—Bids Asked—Grocerland Co-operative Inc., 105 S. Water St., 1 and 2 story warehouse and office $600,000. P. E. Camburas, 105 W. Madison St., archt. CD 7/13.

SOON LETS CONTRACT

Pa., Villanova—BOILER HOUSE—Villanova College, Villanova, soon lets contract boiler house and radial brick stack. $600,000. George M. D. Lewis, 445 Kressley Court, Scranton, archts., Scandale Burkavage & Assoc. Lincoln Bldg., Scranton, engrs. CD 9/21.

▲ **Pa., West Chester**—MANUFACTURING—Wyeth Inc., 1600 Arch St., Phila., soon lets contract mfg. bldg. $1,000,000. Walker Yeomans, 117 S. 17 St., Phila., engr.

CONTRACTS AWARDED

Calif., Modesto—NEWSPAPER—McClatchy Newspaper 911 7 St., Sacramento, 2 story, partial bsmnt., 34,620 sq. ft. concrete block, steel, Modesto Bee newspaper bldg., to Stolte, Inc., 8451 San Leandro St., Oakland **$588,469.** Bids 9/8. CD 8/24.

Ind., Fort Wayne—WAREHOUSE, etc.—Western Auto Stores 1501 Grand St., Kansas City, Mo., 3 story, 140x250 ft. warehouse and office Nelson Rd., east of here, to A. C. Wermuth, Inc., 1036 St. Marys St., approx. **$500,000.**

▲ **Ky., Louisville**—PLANT—Louisville Refining Co., 1300 Western Parkway, oil cracking plant, 150x350 ft. area, incl. solid brick 20x30 ft. pump house, blower house, compressor house and control room to Petroleum Piping Constr. Co., Hammond, Ind., **$2,000,000** Universal Oil Products Co., 310 S. Michigan St., Chicago, Ill., engr.

▲ **Ky., Louisville**—WAREHOUSES—Phillip Morris & Co. Ltd., Inc. 1930 Maple St., group tobacco warehouses, to W. E. Baker Constr. Co., Durham, N. C., **$6,000-000.** Awarded 9/7. CD 9/11.

▲ **La., Chalmette**—REFINERY—Bay Petroleum Corp., Chalmette, modernizing, expanding refinery, to Procon, Inc., Chalmette, **$2,750,000.** CD 9/26.

▲ **La., Lake Charles**—PLANT—Continental Oil Black Co., Amarillo, Tex., design and construction carbon black plant, to United Engineers & Constructors, Inc. 1401 Arch St., Phil., Pa., **$1,500,000.** CD 9/26.

La., Lake Charles—PLANT—Jefferson Lake Sulphur Co., c/o Freeport Sulphur Co., Freeport, Tex., structural steel, masonry sulphur plant addn., incl. roads, power plant, office, warehouse, shops at Jefferson Lake to Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. **$850,000.**

La., New Orleans—WAREHOUSE etc.—Western Electric Co., 195 Broadway, New York, N. Y., 2 story, rein.-con., steel, masonry warehouse and office with slab roof, S. Broad St. between Clio and Calliope Sts. to Barge Thompson Co., 136 Ellis St. N. E. Atlanta, Ga., **$950,000.** Awarded 9/18. (**Correction**—contractor) CD 8/29, under CA.

▲ **Mich., Ferndale**—FACTORY—Reichhold Chemical, Inc., Woodward Heights, brick chemical factory, 10 stacks and odor control units, Woodward Heights, to Rudy-Sackett Co., 4181 Oakman St., Detroit, Approx. **$1,000,000.** CD 8/14.

▲ **N. Y., Brooklyn**—WAREHOUSE—News Syndicate Co., Inc., 220 E. 42 St., New York, Zone 17, 2 story paper warehouse, on Buttermilk channel, to Turner Constr. Co., 420 Lexington Ave., New York, Zone 17. Approx. **$2,500,000.** Faye, Spofford & Thorndike, 11 Beacon St., Boston, Mass., archts. CD 1/14/46.

▲ **O., Toledo**—WAREHOUSE, etc.—A & P Food Stores, M. W. Alldredge, gen. supt., 719 Brown Ave., design and construction 1 story, 200x500 ft. concrete, brick main bldg. with 1,500 ft. railroad siding, truck garage and maintenance bldg. 100x150 ft.; two parking lots for 200 cars; truck courts, parking areas for 80 tractor-trailer units, main bldg. to contain freezers, refrigerated areas, banana-ripening rooms, loading docks for 23 truck, etc. on 32 acre tract on east side of Westwood Ave. between Door St. and Nebraska Ave., to Hillsmith & Co., Federal Reserve Bldg., Cincinatti, Approx. **$1,250,000.**

Wash., Spokane—WAREHOUSE—McClintock-Trunkey Co., S 119 Stevens St., 111,500 sq. ft. food warehouse, to National Industrial Constr. Co., Palo Alto, Calif., Approx. **$500,000.** CD 10/2.

Alta., Edmonton—MINING DEVELOPMENT—Eldorado Mining Co. Ltd., Edmonton, uranium deposit development at Beaverlodge Lake on north shore of Athabaska River. Owner builds. **$700,000.**

UNCLASSIFIED

BIDS ASKED

B. C., Harrison Lake—WHARF—B. A. 10/18—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstruction. Approx. $60,000. Plans deposit $20. R. Blais, c/o owner, engr.

Ont., Pelee Island—WHARF—B. A. 10/18—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstr., West Pier. Approx. $70,000. Plans deposit $20. R. Blais, c/o owner, engr.

Illinois—TRAFFIC CONTROL SIGNALS—B. A. 10/20—Dpt. P. Wks. & Bldg., Div. Hys., Centennial Bldg., Springfield, furnishing, installing electrically operated automatic traffic control signals at intersection of S.B.I. Route 25 and west entrance into Chanute Field about ½ mi. south of Rantoul Sect. 30X-1TL-1 S.B.I. Route 25, Dist. 5, Champaign Co.

† **Montana**—AIR COMPRESSOR, etc.—B.A. 10/24—Bureau Reclamation, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point of f.o.b. cars Louisville, one motor-driven, 2-stage, duplex-stationary or vertical V-type air compressor; one motor driven, single stage, straight air compressor; one portable, motor driven 2-stage air compressor; 2 after-coolers; 3 air receivers for Canyon Ferry Power Plant, Helena-Great Falls Div., Canyon Ferry Unit, Missouri River Basin Proj. Spec. 3196.

Oregon—RURAL DISTRIBUTION LINES—B. A. 10/24—Benton-Lincoln Electric Co-operative, 561 Van Buren St., Corvallis, 58.29 mi. of V.2/12.5 rural distr. lines, Lane, Linn and Benton Counties. Extended date. James A. Brigman, 561 Van Burne, Corvallis, engr. CD 9/27.

† **N. M., Las Cruces**—TELEPHONE DUCT SYSTEMS—B.A. About 10/25—U. S. Eng., P. O. Box 1538, Albuquerque, underground telephone duct systems for headquarters and army-navy blockhouse, White Sands Proving Ground (NAV-95, P-95 and P-97), Serial No. Eng 29-005-51-10. Plans deposit $10.

Tex., Longview—NATURAL GAS SYSTEM—Bids Asked—Lester Matlock, Longview, natural gas., sys., 116-acre hi-class residential tract on Hy. 80, 3 mi. east of here, $50,000.

CONTRACTS AWARDED

† **North Dakota** — ELECTRICAL EQUIPMENT — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Items 1, 2, 3, 5, 6, 8, 9, 18, 20, 22, 34, 36, 46, 51, 61, 64 and 65, four 10,667/5,000-kva transformers with spare parts, two 75-kva and two 50-kva transformers, one 230,000 volt circuit breaker with spare parts, three 230,000 volt lighting arresters, and ten current and eleven potential transformers for Rugby, Devils Lake, Lakota, Jamestown, Valley City, Washburn and Bismark substations, Central North Dakota power sys., Missouri River Basin Proj., Transmission Div., Spec. 3100, to Westinghouse Electric Corp., G. & E. Bldg., Denver, Colo., **$416,439*****Items 10, 37, 43, and 48, three 50-kva transformers and one 69,000 volt voltage regulating transformer with spare parts for Carrington, Leeds, Rolla and Bismarck sub-stations, to Moloney Electric Co., 5390 Bircher St., St. Louis, Mo. **$59,-338.** Bids 7/26.

▲ **Texas and Louisiana**—GAS PIPE LINE—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, La., 26 mi. 18 in. gas pipe line from fields west to Texas coast and appurtenances, own forces. **$1,600,000.** CD 7/31.

▲ **Ontario**—GAS PIPE LINE—Union Gas. Co. of Canada Ltd., 227 Front St. N., Sarnia, 60 mi., 16-in. gas pipe line from Windsor to Dawn Field., to Shaw Constr. Co., 530 Widal St., Sarnia, Approx. **$2,580,000.**

(Proposal Advertisements see pp. 102 to 104)

OFFICIAL PROPOSALS

appear here each Thursday. Proposal advertisements accepted up to 10 a.m. Friday for the issue dated the following Thursday.

U. S. Government

BIDS FOR REPOWERING TOWBOAT—Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 11:00 A.M., C.S.T., October 24, 1950, and then publicly opened, for repowering the twin-screw, diesel engine propelled towboat Coiner using Government-furnished engines and accessories. $10.00 deposit required on plans. Information on request. (101)

General Services Administration, Public Buildings Service, Washington, D. C., Sept. 27, 1950—On or about Oct. 10, 1950, bidding material for construction (except elevators and boilers) of the Boiler Plant and Incinerator building at the National Institutes of Health, Bethesda, Maryland, will be available for distribution to General Contractors by this office. Applications from General Contractors interested in bidding on this work, for not to exceed four sets of drawings and specifications, should be filed promptly with this office and the bidding material will be forwarded as soon as available. Bids will be opened on the date named in the Prebid Documents, which will be about six weeks after the bidding material is available for distribution. Description: Three stories and Penthouse Boiler Plant part, and two stories Incinerator part, of building with ground floor and basement under entire building. Approximate size of Boiler Plant part of building 110'-0" by 238'-0". Approximate size of Incinerator part of building 52'-0" by 108'-0". The construction work also includes two underground steel oil storage tanks approximately 88'-0" in diameter and 14'-0" high with concrete under slab and concrete roof slab. Reinforced concrete and steel framing, columns, beam and slab construction. Facing, face brick; limestone trim, cornices, sills, door trim, etc. Steel siding and steel louvers enclosing cooling tower. Windows—awning type steel. Composition roof. Inside—plastered walls and ceilings, structural facing tile walls, floors of cement, asphalt tile and ceramic tile. Tile wainscots in toilets. Laboratory equipment included. The boilers and their operating equipment have been contracted for. Elevators will be under a separate contract. Available for construction—$5,000,000.00. Bidding material will be available at Room No. 1304, General Services Building, 19th and F Streets, N. W., Washington 25, D. C., Phone Executive 4900, Extension 2397. W. E. Reynolds, Commissioner of Public Buildings Service, General Services Administration. (123)

(Continued on page 103)

OFFICIAL PROPOSAL

RATE: $1.00 per line (or fraction) per insertion.

CLOSING DATE: 10:00 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

"Opportunity" Advertising:
Think
"SEARCHLIGHT"
First

OFFICIAL PROPOSALS

(Continued from page 102)

Bids: November 1, 1950 (122)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, November 1, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 3 Wm. Robinson, Dist. Engr., 301 E. Water Street, Syracuse, N. Y.						
Onondaga	FAOT50-7 FARC50-56 FAST50-12	Interchange to the Ontario Thruway Syracuse-Phoenix, S. H. Euclid Road S. H. 5274 Proj. No. U. I. 1071 (11)	0.94 Thwy. 0.82 Int. Rds. 1.25 Access	9" Cem. Conc. Pavt. Var. Width = 2.47 mi. Misc. Work = 0.54 mi. Hy. Sep. 2 Sp. Alpha I-Beam 168.5'; Hy. Sep. 4 Sp. Alpha I-Beam 215.83' Alpha Royalty $491.40	$55,000 Plans $25	$931,000
DISTRICT No. 4 A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.						
Wyoming	RC50-57	Warsaw-Gainesville, S.H. 5400	0.07	Asp. Conc. Type 1A, Opt. 22' Reinf. Conc. Slab	$1,500 Plans $10	$27,000
DISTRICT No. 5 C. R. Watkins, Dist. Engr., 65 Court Street, Buffalo, N. Y.						
Chautauqua	FARC50-55 FAC 50-12	Proj. U458(8) Penn. State Line-Dunkirk Pt. 3, S. H. 8344 Lake Shore Drive: City of Dunkirk	1.03	Asph. Conc. Type 2A, Opt. = 0.99 mi. Misc. Work = 0.04 mi.	$23,000 Plans $10	$390,000
Erie	FAC 50-11	City of Buffalo: Fuhrmann Blvd. High Level Bridge Proj. U750(5)	0.71	Bridge Substructure	$100,000 Plans $25	$1,791,000
DISTRICT No. 9 F. W. Donovan, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.						
Delaware	FARC50-54	Delhi-Bloomville, S. H. 747 Hobart-Stamford, S. H. 952 Proj. F746(2); F198(2)	3.53	Asph. Conc. Type 1A, Optional 46.92' Sp. I-Beam Bridge	$40,000 Plans $25	$698,000
DISTRICT No. 10 J. J. Darcy, Dist. Engr., Montauk Hwy. at Little East Neck Road, Babylon, L. I., N. Y.						
Queens	FAVWE50-5	Van Wyck Expressway (Cont. 8) Proj. U1085(11)	2.97	Roadside Improvement	$30,000 Plans $15	$513,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: October 26, 1950 . (105)

Grade Crossing Elimination Project

Sealed Proposals for the elimination of the grade crossing at New or Tower Road, Monmouth Junction, New Jersey, will be received by the Pennsylvania Railroad Company at the Office of Chief Engineer-Eastern Region, Room 450, Pennsylvania Station, 30th Street, Philadelphia, Pa., until 10 A.M., Eastern Standard Time on October 26, 1950, at which time and place they will be publicly opened and read.

The major items of work include the following approximate quantities:

37,000	c.y. Embankment
1,050	c.y. Foundation Excavation
8,900	s.y. Top Soiling
4,500	s.y. Macadam Base Course (6" thick)
500	tons Bituminous Concrete Surface Course
700	c.y. Class "B" Concrete in Structures
1,210	c.y. Class "C" Concrete in structures
127,700	lbs. Reinforcement Steel in Structures
952,000	lbs. Structural Steel
1,150	l.f. 24" diameter Reinforced Concrete Culvert Pipe
8	each Manholes
3,700	l.f. Concrete Curb
950	s.y. Bituminous Concrete Sidewalk
2,650	l.f. Guard Fence

The Contract Documents, including Plans and Specifications, may be examined and obtained at the Office of the Assistant Chief Engineer, Eastern Region, Room 351, Pennsylvania Station, New York City, upon deposit of Ten Dollars per set which will be refunded upon return of the Documents in good condition within twenty days after date on which bids are received.

Each Proposal must be accompanied by a certified check of the Bidder payable to the Pennsylvania Railroad Company, in an amount not less than five per centum of the Total Price stated in the Proposal, subject to the conditions provided in the Invitation to Bid.

Proposals must be submitted in a sealed envelope marked "Monmouth Junction Grade Crossing".

The right is reserved to reject any or all bids.

Pennsylvania Railroad Company
L. P. Struble, Chief Engineer-Eastern Rgn.,
Philadelphia, Pa.

OFFICIAL PROPOSALS

Bids: October 26, 1950 (991)

County Stadium

MILWAUKEE COUNTY PARK COMMISSION
ROOM 308, COURT HOUSE
MILWAUKEE, WISCONSIN
OFFICIAL NOTICE

Sealed bids will be received at the office of the Milwaukee County Park Commission, Room 308, Court House, Milwaukee, Wisconsin until 10:00 a.m., Thursday, October 26, 1950, to be opened in the County Board Committee room before the Highway Committee of the County Board of Supervisors and the Milwaukee County Park Commission, for furnishing labor, material, and equipment and constructing the piling and foundations, and the main structure of the County Stadium. The fabrication, delivery, and erection of the main portion of the structural steel required has already been contracted for by the Milwaukee County Park Commission.

Proposal for the work contemplated will be set up as follows:

Unit 1—Piling and foundations
Unit 2—General contract for stadium structure
Unit 3—Combined bid on Item 1 and Item 2

Bidders may submit bids on Item 1 or Item 2 or on Items 1 and 2 combined with the County reserving the right to accept any bid or combination of bids deemed most advantageous to the County.

Approximate quantities of the principal items under Unit 1, Piling and Foundations, are as follows:

90,000	lineal feet of piling
1,800	cu. yds. of concrete
50	tons of reinforcing steel

Approximate quantities of the principal items under Unit 2, General Contract for Stadium Structure, are as follows:

6,400	cu. yds. of concrete
420	tons of reinforcing steel
1,220	squares metal roof deck and roofing
300	squares aluminum siding
20,000	sq. ft. wire mesh
12,000	lin. ft. railing
850	M brick
110	M glazed tile
3,700	lin. ft. stone trim
6,000	sq. ft. corrugated glass
390	plumbing fixtures
4	electric vaults with equipment
500	lamps-field lighting stadium

All work to be done in accordance with plans and specifications, which will be available at the Milwaukee County Regional Planning Department, Room 303 Court House, after September 28, 1950. A deposit of $10.00 shall be required for each set of piling and foundation plans taken from the office, and a deposit of $50.00 shall be required for each set of general structure plans taken from the office. The deposit shall be refunded if all plans and specifications are returned in good condition not later than ten (10) days after the opening of proposals.

The right is reserved to reject any or all bids or to accept any bid or combination of bids deemed most advantageous to Milwaukee County or to waive any informality in the bidding.

Certified check or bidders bond in the amount of 5% of total amount of bid, payable to Milwaukee County, must be submitted with each proposal as a guarantee that if the bid is accepted, the bidder will execute and file a satisfactory contract and bond within ten days after the award of contract.

MILWAUKEE COUNTY PARK COMMISSION
Jerome C. Dretzka,
Executive Secretary

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3193) will be received by Bureau of Reclamation, Fort Collins, Colorado, November 1, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of Brighton-Hoyt-Brush 115-kilovolt transmission line, Colorado-Big Thompson Project, Colorado. The work is situated between Brighton and Brush, Colorado. The transmission line will be 115,000-volt, 3-phase, single-circuit, wood-pole, H-frame type, approximately 72 miles long, with 2 overhead ground wires strung the entire length of the line. Time allowed for completion will be 320 days. For particulars, address Bureau of Reclamation, Building 10, or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner
(120)

(Continued on page 104)

OFFICIAL PROPOSALS

(Continued from page 103)

Bids: October 24, 1950 (121)

Construction of Bridges

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

BRIDGES, ROUTE 4 PARKWAY, SECTION 8

Construction of three bridges over Branch of Rahway River on Route 4 Parkway, Section 8, at Michigan Avenue, Bloomingdale Avenue Extension and Route 4 Parkway in the Borough of Kenilworth, Union County. The principal items of construction are:

Estimated:
730 cu. yds. Concrete in Structures
60,000 lbs. Rein. Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Room 140, in the State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., on Tuesday, October 24, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified chek shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: November 2, 1950 (119)

Construction of Bridge Approach

DELAWARE RIVER
JOINT TOLL BRIDGE COMMISSION
526 Broad Street Bank Building
Trenton 8, New Jersey
NOTICE TO CONTRACTORS

Sealed proposals for the construction of the Morrisville Approach to the Delaware River Bridge from Morrisville, Pennsylvania to Trenton, New Jersey will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00) A.M. Eastern Standard Time, on November 2, 1950, at which time and place all bids will be publicly opened and read aloud.

After October 5, 1950, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, or at the office of the J. E. Greiner Company, 1201 St. Paul Street, Baltimore 2, Maryland, and copies thereof obtained upon payment of $15.00 for each set, which amount is not returnable.

The following are approximate quantities of major items:

Roadway Excavation	2,650	C. Y.
Borrow Excavation	207,000	C. Y.
Structure Excavation	13,000	C. Y.
Steel Bearing Piles	10,200	L. F.
Class A Concrete	9,800	C. Y.
Reinforcing Steel Bars	897,000	Lbs.
Structural Steel	256,000	Lbs.
Spiral Shear Connectors	3,000	Lbs.
Reinforced Concrete Pavement	16,250	S. Y.

Each bid must be accompanied by a certified check in the amount of $100,000.00.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract with the Commision in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one hundred percent (100%) of total amount of the contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT
TOLL BRIDGE COMMISSION
by: Alexander R. Miller
Chairman of Commission

Date October 5, 1950

Bids: October 24, 1950 (118)

Construction of Bridge & Approaches

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE S4B, SECTION 1B

Construction of Bridge & Approaches at West Saddle River Road, on Route S4B, Section 1B, Borough of Fairlawn, Bergen County. Federal Project U-189(4). Length 0.16 mile.

Roadway Items

Estimated:
19,000 cu. yds. Borrow Excavation
2,550 sq. yds. 4" Macadam Base Course
2,550 sq. yds. 3" Mod. Pen. Mac. Inter. Course
322 tons Pavement, Type MA-BC-1

Bridge Items

6,000 lin. ft. Treated Timber Piles
878 cu. yds. Concrete in Structures
36,710 lbs. Structural Steel
29,780 lbs. Rein. Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, October 24, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE. The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, Fulton & Paterson Streets, Paterson, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1:50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: October 24, 1950 (117)

Construction of Shoulders

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

BLOOMFIELD AVENUE

Construction of Shoulders along Bloomfield Avenue from State Highway Route No. 6 to Passaic Avenue in Township of Caldwell and Borough of West Caldwell, Essex County, Federal Aid Secondary Project No. S-83(2). Length 0.98 mile.

Estimated:
3,900 cu. yds. Roadway Excavation-Earth
2,300 cu. yds. Subbase
8,100 sq. yds. 5" Macadam Base Course
900 tons Bituminous Concrete, FA-BC-1

Bids for the above will be received at the office of the State Highway Department, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, October 24, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 600 Bloomfield Avenue, Bloomfield, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

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NEW ADVERTISEMENTS received by October 16th at the New York Office, 330 W. 42 St., N. Y. 18, will appear in October 26th issue subject to space available.

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REPLIES (Box No.): Address to office nearest you
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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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WANTED, SEVERAL engineering graduates under 35, by large industrial fire prevention organization for field work involving periodic inspections and special consulting service. Electrical and Chemical engineers preferred. Permanent. Openings in United States and Canada. P-7287, Engineering News-Record.

CONSTRUCTION COMPANY, operating nationwide, specializing in structural concrete, such as bridge piers and their foundations and mass concrete such as dams, require A No. 1 thoroughly experienced estimator familiar with present-day costs capable of preparing comprehensive and complete estimates. To be considered, complete information must be furnished. Our organization has been advised of this advertisement. P-6974, Engineering News-Record.

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STRUCTURAL STEEL Detailer and engineer, experienced, for long time steady work with growing organization. Pay up to $7500. Must be steady, accurate. Applicant should advise age, experience, employment record for past 10 years. P-7884, Engineering News-Record.

CIVIL ENGINEERS. College graduates with one year of civil engineering experience or non-graduates with six years of experience. Starting salary $341 per month, top $410. Official application for competitive examination must be filed by November 10. Write to Contra Costa County Civil Service Commission, P. O. Box 710, Martinez, California.

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P-7858, Engineering News-Record
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P-7915, Engineering News-Record
68 Post Street, San Francisco 4, Calif.

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P-7541, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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P-7876, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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RA-7880, Engineering News-Record
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PW-7896, Engineering News-Record
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Of Engineering News-Record published Weekly at Albany, New York, for October 1, 1950.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 42,755.

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By J. A. GERARDI, Vice Pres. & Treas.
Sworn to and subscribed before me this 15th day of September, 1950.
[SEAL] ELVA G. MASLIN.
(My commission expires March 30, 1952.)

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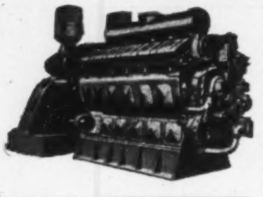

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DIESEL GENERATOR POWER UNITS: 4—Caterpillar D13000 diesel motors with 74 KW self-regulating AC generators, 3 phase, 60 cycle, 220/440 volt, 1765 RPM, V-belt drive.

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LOCOMOTIVES: Vulcan 10 ton, gasoline, standard gauge. Plymouth 30 ton, gasoline, standard gauge.

SHOVELS & CRANES: P & H model 955, 2½ yd. Shovel. P & H model 955 dragline, long cats, 90 ft. boom, 2 yd. bucket. Bucyrus Erie 120-B, 4 yd. electric, and one 170-B, 6½ yd. electric. Page 620 Diesel Dragline, 110 ft. boom. Lima 2 yd. dipper, sticks and boom for model 802, NEW condition.

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1—Koehring 1¼ yd. Crane
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17 Diesel 315, 500, 630, 900 & 1500 Ft.
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2—41B Bucyrus 1-½ Yd. 50' Boom Steam Crane.
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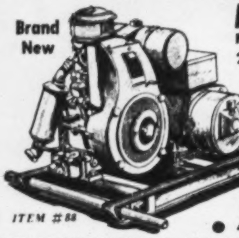

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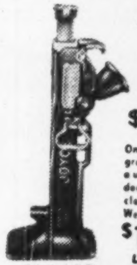

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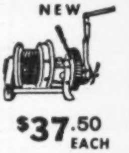

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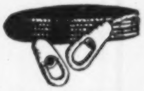

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1—1¼ yd. #5 Northwest Ser. No. 4564, Powered with 6 cyl. Wisc. Model D84 gasoline engine. With 60' boom.

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1—⅜ yd. Bucyrus Erie Mdl. 10B, Ser. #14104, gas powered with 28' boom, ⅜ yd. dragline bucket.

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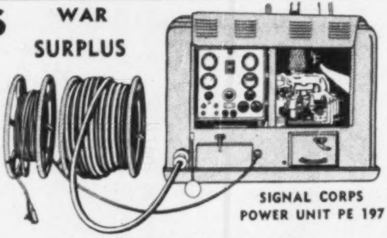

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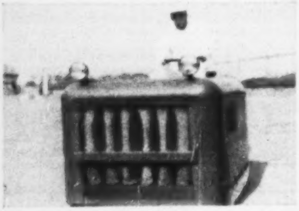
New Model Truck Cranes Are Mounted on a Three-Axle Carrier

Unit announces the development and production of two new models, the 1520T and the 1014. The 1520T has a lifting capacity of 20 tons, or ¾-yd as an excavator. It is mounted on a 3-axle tandem-drive crane carrier. Wheelbase is 184 in. to center of tandem axles; over-all width has been held to 8 ft. Air steering is standard. One-man control system is optional. Power can be provided by gasoline or diesel engines. Road speed is 30 mph. The 1014 has a lifting capacity of 10 tons, or ½-yd as an excavator. Its carrier is similar to the 1520T. Independent boom hoist is optional. Road speed is 32 mph. Both models are offered with a 2-position mounting of the upper structure—forward position for maximum crane capacity; rear position for maximum working range in excavating operations.—Unit Crane & Shovel Corp., Milwaukee 14, Wis.

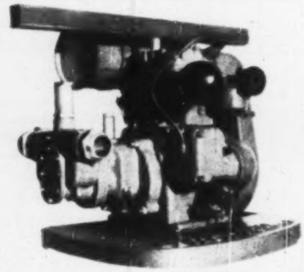


Motorized Sweeper

Tri-wheel sweeper is equipped with a vacuum dust-control system said to assure dustless sweeping under extreme conditions. The Wayne industrial model sweeps a 42-in. swath at speeds of 6 mph. It is powered by a 7½-hp engine. Dimensions are: Width, 46½ in.; length, 80 in.; and height, 52 in.—Wayne Mfg. Co., Pomona, Calif.

Sprayable Mastic Coating

Elastic coating (Tremco 101 Mastic) can be sprayed on all types of masonry surfaces. This mastic water repellent provides a thick coating resembling plaster in appearance. Tremco 101 is supplied in colors, so that it does not have to be painted. The material can also be applied by brush or trowel. The manufacturer claims that because it is a mastic, Tremco 101 remains pliable and resilient, and easily absorbs normal expansion and contraction of buildings.—The Tremco Mfg. Co., 8701 Kinsman Road, Cleveland, Ohio.



Pump for Water Mains

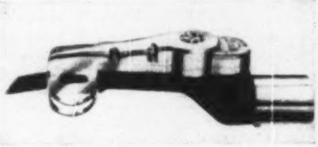
Rotary, positive-displacement pump is especially applicable for pressure testing and chlorinating water mains. This rubber-gear pump develops pressures up to 200 lb. It features prelubricated bearings, mechanical seals (no packing), and adjustable automatic by-pass valve.—Porto Pump, Inc., 227 Iron St., Detroit 7, Mich.

Electric Lubricating Gun

Model 249 electric Lubrigun features a pressure primer for dispensing medium and heavy-grade lubricants. These guns are specifically designed for use with lubricants that will not readily seek their own level. Units are equipped with a manually operated screw-feed pressure primer said to maintain positive and continuous prime, even at low temperatures.—Lincoln Engineering Co., 5702-20 Natural Bridge Ave., St. Louis 20, Mo.

Surfaced Asphalt Plank

Mineral-surfaced asphalt plank is said to provide greater skid resistance to highways. It meets the requirements of Specification M-46-38 of the American Assn. of State Highway Officials. It has one pound of crushed trap rock per sq ft distributed uniformly over its surface. Planks are uniform in size and fit together to form a floor surface that is free of open cracks.—The Philip Carey Mfg. Co., 217 E. 8th, Cincinnati 15, Ohio.



Reciprocating Saw

Key-hole and other types of sawing are speeded by RCS reciprocating Super-Saw that eliminates the need for a starting hole. A built-in blower keeps the motor cool and the cutting line clear of chips and saw dust. Power can be provided by an electric or air drill or other standard flexible shaft equipment. The Super-Saw is 10¾ in. over-all, and weighs 3 lb 6 oz.—RCS Tool Sales Corp., Dept. P54, Joliet, Ill.

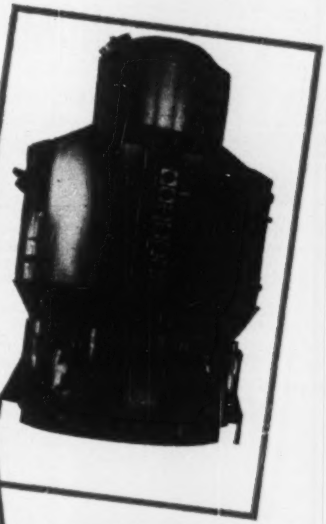
Mobile Machine Shop

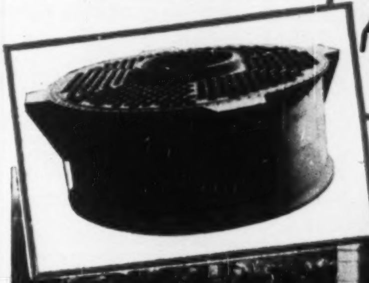
Truck equipped with a complete line of tools serves as a mobile repair

(*Continued on page 118*)

BYERS WROUGHT IRON

helps to assure a "Sweet-Running Operation" here





A $3,000,000 rehabilitation program has been almost 50% completed at the Imperial Sugar Companies' cane sugar refinery at Sugar Land, Texas. This cane sugar refinery has a daily output of 2,000,000 lbs. of refined sugar. Around-the-clock operation makes equipment dependability a first requirement. In a number of services, this responsibility has been met by the liberal use of genuine wrought iron.

The calandrias (top left) and the vacuum pans in which they are housed, were fabricated from Byers Wrought Iron plates. Steam in the calandria drum boils the concentrated syrup, called massecuite, concentrating it to the crystallizing point. It is then pumped into vertical crystallizers, and held until centrifuging. Two vacuum pans, flanked by two crystallizers, are shown in the construction view of the new seven-story building. A third pan will be installed later.

In addition to this application, where abrasion is the major threat to service life, wrought iron was installed for a number of miscellaneous piping services. The company has used wrought iron pipe for maintenance work for a number of years, so the specification is based on the soundest foundation of all—actual past experience, that demonstrated the ability of wrought iron to do the job right . . . and to keep on doing it.

THE A B C'S OF WROUGHT IRON tells about the material. Ask for a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

Why Wrought Iron Lasts

Wrought iron's longer life comes from its unique nature. Tiny fibers of glass-like silicate slag, threaded through the body of high-quality iron, halt and disperse corrosive attack. The fibers also anchor the initial protective scale, which shields the underlying metal.

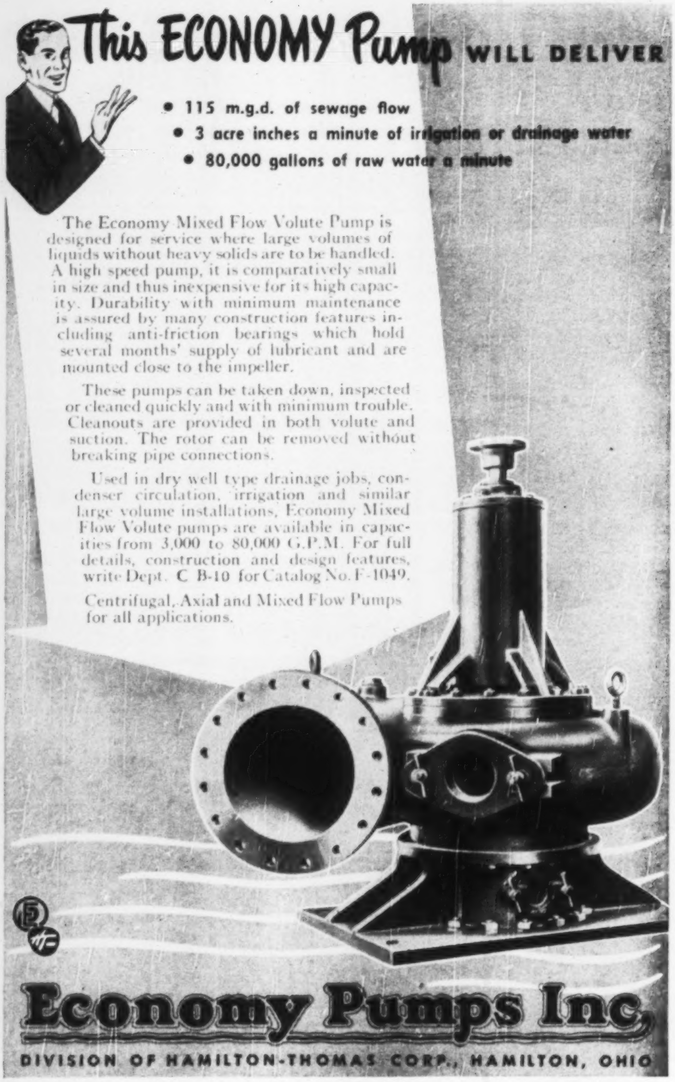
BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS


This ECONOMY Pump WILL DELIVER

- 115 m.g.d. of sewage flow
- 3 acre inches a minute of irrigation or drainage water
- 80,000 gallons of raw water a minute

The Economy Mixed Flow Volute Pump is designed for service where large volumes of liquids without heavy solids are to be handled. A high speed pump, it is comparatively small in size and thus inexpensive for its high capacity. Durability with minimum maintenance is assured by many construction features including anti-friction bearings which hold several months' supply of lubricant and are mounted close to the impeller.

These pumps can be taken down, inspected or cleaned quickly and with minimum trouble. Cleanouts are provided in both volute and suction. The rotor can be removed without breaking pipe connections.

Used in dry well type drainage jobs, condenser circulation, irrigation and similar large volume installations, Economy Mixed Flow Volute pumps are available in capacities from 3,000 to 80,000 G.P.M. For full details, construction and design features, write Dept. C B-10 for Catalog No. F-1049.

Centrifugal, Axial and Mixed Flow Pumps for all applications.

Economy Pumps Inc,
DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO

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DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS
Foundation Testing for Bridges, Dams and All Heavy Structures
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PNEUMATICALLY PLACED CONCRETE
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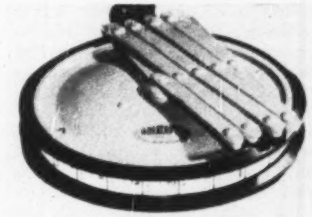
shop for maintenance and service of construction equipment in out-of-the-way locations. Items on the Cemco unit include: 5-kw generator, 11-in. bench lathe, 6-in. bench grinder, 2-ton arbor press, 20 to 180-amp ac electric arc welder, electric drill, and a complete line of hammers, files, wrenches, clippers, saws, gages, and other small tools. Optional equipment includes: Two-stage air compressor, paint-spray outfit, 2-ton winch crane, milling machine, and shaper.—CEMCO INDUSTRIES, INC., FIRST NATIONAL BANK BLDG., GALION, OHIO.



Lightweight Measuring Tape

Rolatape is designed to permit accurate one-man measurement of vertical, horizontal, or circular distances. Recessed tape face on rim of wheel indicates measurement in fractions of an inch to 2 ft. An automatic counter clocks measurements in feet and in cycles of 100 ft. An audible click is made for every two feet measured, and a bell rings at the 100-ft. mark.—ROLATAPE, INC., SANTA MONICA, CALIF.

Baseboard Heating Design

Features of Webster baseboard heating design are that it is narrow (projects 2¼ in. from the wall), is low (over-all height is 8¼ in.), and it has an all-metal molding and baseboard enclosure. Heating element is a ¾-in. copper tube with copper fin construction. Front and back edges are flattened to reduce depth. A manually operated damper is optional.—WARREN WEBSTER & CO., 17TH & FEDERAL STS., CAMDEN, N. J.

Splicer Tool Box

Small tool box has automotive-type springs and pneumatic-tired wheels to permit high-speed trailing. It has a one-piece cover, two full-width steel shelves, a drop shelf for a work bench, and a detachable stiff leg used for work in the working position. The boxes are all steel.—LITTLEFORD BROS., INC., 453 E. PEARL ST., CINCINNATI 2, OHIO.

Plastic-and-Metal Screw

Forman screw combines the strength of a metal screw with the properties

(Continued on page 121)

Bills for repairs got you over a barrel?

MISTER, if that's you over the barrel, you need Quaker State HD Oil to keep your equipment on the road longer, in the shop less. Keep engine wear at a minimum, and you keep repair bills at a minimum.

Made from 100% pure Pennsylvania grade crude oil especially for heavy duty use, Quaker State HD Oil is refined with the most modern processing equipment and with technical skill unsurpassed in the industry, and it is compounded with chemical detergents of highest quality.

Even when the going is toughest, Quaker State HD Oil keeps its body, lubricates thoroughly, protects fully, cushioning every friction surface. It helps prevent the formation of sludge, gum or varnish—actually, it *cleans* as it lubricates.

There is no finer engine lubricant for trucks, buses, tractors and motorized equipment. So switch over to Quaker State HD Oil—and keep 'em rolling!

QUAKER STATE
HD OIL

Use Quaker State HD Oil for trucks, buses, taxis, tractors.
Use Quaker State Motor Oil for passenger cars.

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.

Future-minded planning will keep operating budgets low in the

NEW FLORSHEIM "DREAM HOME"

Another in the long list of America's finest new buildings equipped with JENKINS VALVES

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THE FLORSHEIM SHOE

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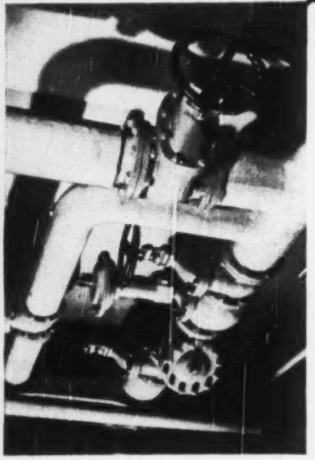
General Contractors
CAMPBELL-LOWRIE-LAUTERMILCH, INC.
Plumbing & Heating Contractors
M. J. CORBOY CO., CHICAGO, ILL.



Among the 1022 Jenkins Valves installed in The Florsheim Shoe Company's combined factory-and-office building are these gate valves in the steam distribution lines of the heating system. Other Jenkins bronze, iron, and steel valves control water, air-conditioning, and such vital lines.

With its unbroken horizontal tiers of grey brick curtain walls which "seem to float in thin air", acres of glass their only visible means of support, the new home of The Florsheim Shoe Company in Chicago might be called an industrial "dream home"

It is certainly one of America's most notable examples of future-minded planning. Like the production machines used in cutting, lasting, stitching, and finishing Florsheim Shoes, the equipment installed for building operation is the most efficient modern engineering has devised. Here, Jenkins Valves "fit perfectly".

In fact, because of their dependability, safety and lasting economy, Jenkins Valves have been the choice, consistently, of leading architects, engineers and contractors for the towering skyscrapers, huge industrial plants, and super airports that are making today's building news.

Jenkins builds extra endurance into valves — proved by low upkeep cost records in every type of service. Yet, despite this extra value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy.

Jenkins Bros., 100 Park Ave., New York 17; Jenkins Bros., Ltd., Montreal

JENKINS
LOOK FOR THE DIAMOND MARK
VALVES
SINCE 1864
TRADE JENKINS MARK

Sold through leading Distributors everywhere.

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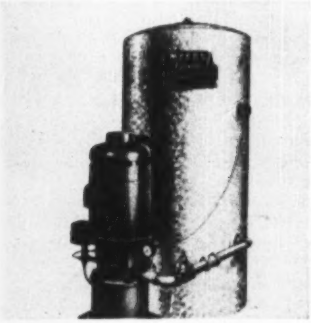
of electrical insulation, shock resistance, and vibration damping. Basically, it consists of a serrated metal core extrusion-coated with a thermoplastic material. Type of core and plastic depends upon use to which the screw will be put. Metal core runs entire length of the screw, and carries the torque applied by a screw driver.—FORMAN INSULATING SCREW CORP., 401 B'WAY, N. Y. 13, N. Y.

Powered Trailer Sweeper

Three-wheel trailer-type sweeper is designed for one-man operation. Brush is available in 6, 7, 8, or 9-ft lengths. It has a 32-in. dia. Frame is supported by three wide-base wheels with 6-ply 18-in.x5.50 tires. Over-all frame length is 11 ft; overhead clearance is 4½-ft.—LITTLE GIANT PRODUCTS, INC., PEORIA, ILL.

Electric Fuel Pump

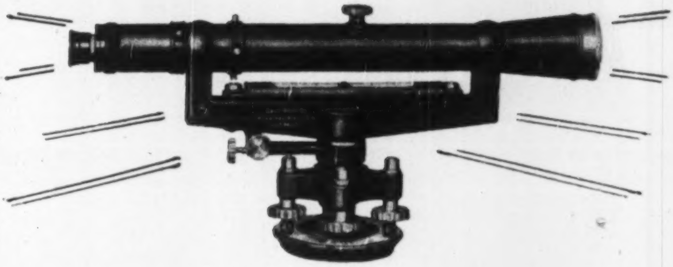
Features claimed for the Vepco pump include elimination of vapor lock, increased engine performance, operation not affected by atmospheric changes or severe vibration, and simple design. This electric fuel pump will fit any gasoline engine, and can be mounted in any position. —VEPCO, INC., 17304 LAHSER ROAD, DETROIT 19, MICH.



Ejector Pumps for Wells

Deeplift Ejecto is an ejector-type pump for well lifts up to 300 ft. It is furnished in 1½, 2, and 3-hp sizes. Features include: Flow of water is automatically divided in the separation chamber so that water supply pumped by the lower impellers is maintained

(*Continued on next page*)



Compare before you buy

David White 18" Dumpy levels give you more features for less money

Look at the chart of important engineering and construction features of the David White 18" Dumpy Level given below. Compare those features, item for item, with every other recognized make of instrument. Then compare prices. You'll see why we say David White 18" Dumpy Levels give you more quality, more advantages important to you in your work for less money. See your nearest David White dealer for complete details on this and other equally fine engineering instruments or write direct to David White Co., 315 W. Court St., Milwaukee 3, Wisconsin.

Features	D. White No. 7080	Instrument A	Instrument B
Magnifying Power of Telescope	35X	30X	27X
Distance away you can read 1/100 ft. graduation	1200 ft.	1050 ft.	900 ft.
Diameter of objective lens	1.81 in.	1.485 in.	1.69 in.
Field of view (In minutes of arc)	64'	52'	60'
Coated optics	YES	YES	YES
Covered Leveling Screws	YES	YES	YES
Can you easily replace worn leveling screws in the field?	YES	NO	YES
Sensitivity of level vial (in seconds of arc per 2mm of graduation)	20"	20"	25"
Price — Complete with carrying case, tripod and accessories — F.O.B. factory .	$280.00	higher	higher

We offer complete, prompt repair service on all makes of instruments — levels, transits, theodolites, etc.

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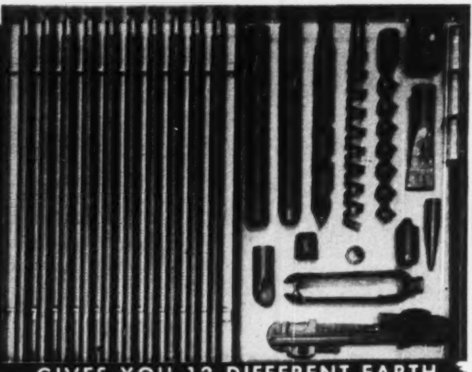

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. . . GIVES YOU 12 DIFFERENT EARTH AND SOIL SAMPLING TOOLS!

Here, in a compact, easy-to-carry kit (it fits into any automobile), are an even dozen tools for recovering accurate samples from practically any material except bed rock.

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Airfield runways • Aluminum silicate deposits
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We invite you to write us today for Bulletin 26-ENR. There are great savings when you use this 12-tool sampling kit, so don't delay. 1

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Immediate Deliveries
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Ezebilt
STEEL PANEL SCAFFOLDING

UpFaster-no bolts to master

Use Ezebilt for all your scaffolding requirements—fastest assembly ever devised. Features exclusive "Gravity-Lock" connections—no wing nuts, no loose parts! Complete stocks on hand for any size job.

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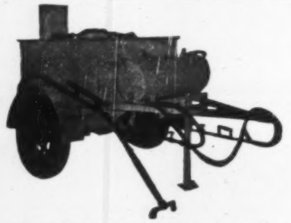

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FOR ASPHALT AND TAR

Fire Proof—Oil Burning
Hand and Motor Driven Spray

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FRONT END SHOVELS
For Industrial Tractors

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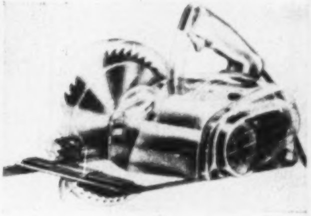
For Stone and Sand

ASPHALT PLANTS
Portable—Stationary

Write for Circulars

White Mfg. Co.
ELKHART INDIANA

at 80 to 150-lb pressure; impeller above separation chamber delivers water to greater lifts and insures dependable service; can be used for crooked wells as it has no rods or line shafting to wear; and can be offset at any convenient location from the well.—The F. E. Myers & Bro. Co., Ashland, Ohio.



Lightweight Electric Saw

Feature of the Syntron lightweight (19 lb) saw is the dual V-belt drive from the motor shaft to the saw arbor shaft. The saw has a 1½-hp motor and is fitted with an 8½-in. blade having a 2 11/16-in. cutting capacity. Use of a rubber V-belt is said to cushion the motor from any sudden shock or overload.—Syntron Co., 328 Lexington Ave., Homer City, Pa.

Engine-Analyzing Recorder

Engine analyzer registers engine troubles in written form. A precision pen, actuated by impulses of the engine vacuum, translates each vacuum change into written autographs. A comparison of these with master graphs permits interpretation of engine faults. The Auto-Graph is self-contained, and operates independently of outside power. Recording tape is driven by a heavy-duty spring-wound motor. Weight of the entire unit is 85 lb.—The Auto-Graph Corp., 1936 W. Colorado Blvd., Los Angeles 41, Calif.

Hydraulic Motor Valve

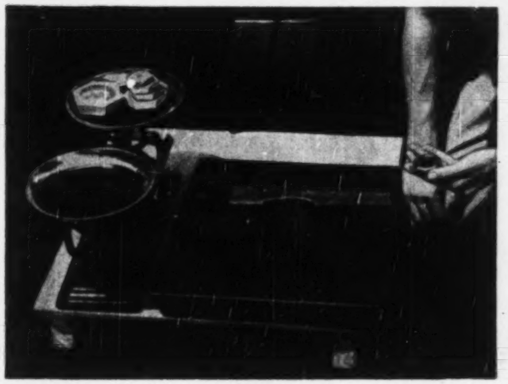
Electric-hydraulic motor valve for open-and-shut control is designed for automatic operation by thermostats or pressurstats or by liquid level or flow controls. The Sarcostat valve is constructed to handle steam, water, oil, gas, air, etc. As a shut-off valve in an inaccessible location, it can be actuated by push-button.—Sarco Co., Inc., 350 Fifth Ave., New York 1, N. Y.

One-Piece Jamb Members

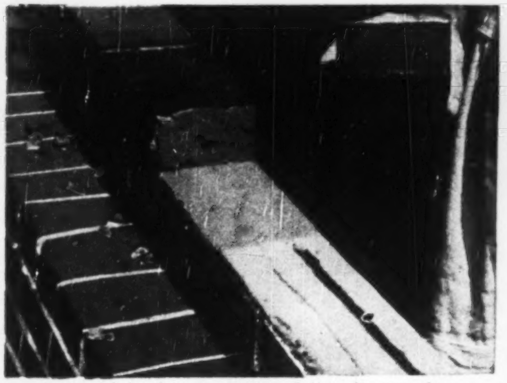
Dura Seal combination metal weatherstrip and sash balance is available with 2 sash runway members and a metal parting stop in a one-piece jamb member. Advantages claimed include: Back surface is concave pro-

(*Continued on page 125*)

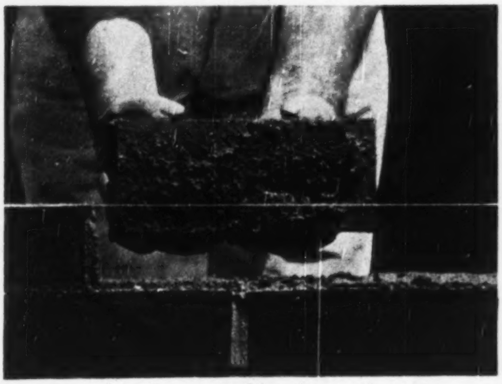
GOOD BRICKWORK = GOOD DESIGN + GOOD WORKMANSHIP + GOOD MATERIALS



When placed flat in ¼-inch of water for one minute, a brick should gain not more than 20 grams (7/10 oz.)



A good bond was not secured here because the brick on which the mortar was spread had sucked the mortar dry, before the brick was laid.



A good bond was secured here because the mortar was not sucked dry too fast.

WET THE BRICK
TO SECURE A
WATERTIGHT BOND

WE SUGGEST THAT—

Brick taken from the scaffold should be tested for rate of absorption, as illustrated at top left. If the tested brick gains more than 1 ounce in weight, all brick should be thoroughly wet just before they are used.

A good initial bond between brick and mortar depends (1) upon the suction rate of the brick, and (2) the water-retaining capacity of the mortar.

If the absorption rate of the brick is too high at the time they are laid, they will suck the water out of the mortar too fast, even though the mortar has high water-retaining capacity. A thorough wetting of the brick just before they are laid is the only way to be *sure* they will have a low enough rate of absorption.

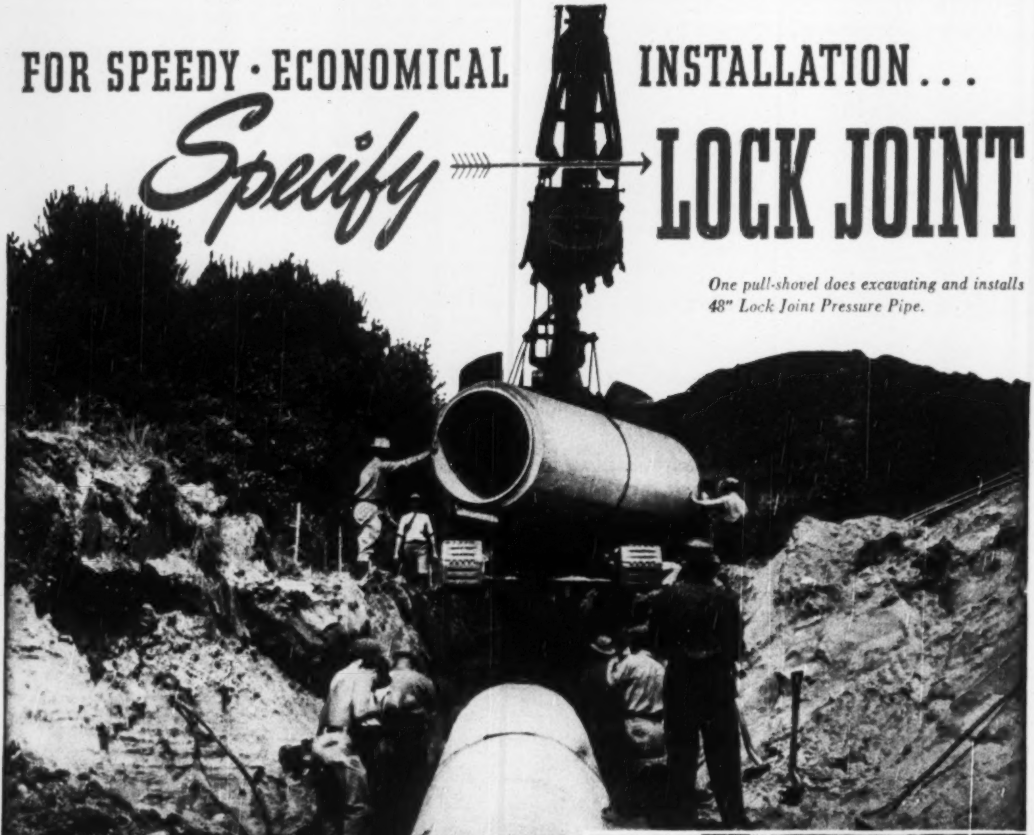
BRIXMENT

Brixment mortar has higher water-retaining capacity and stays soft and plastic longer when spread on porous brick. This helps secure a good, watertight bond.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

FOR SPEEDY · ECONOMICAL INSTALLATION . . .

Specify → LOCK JOINT

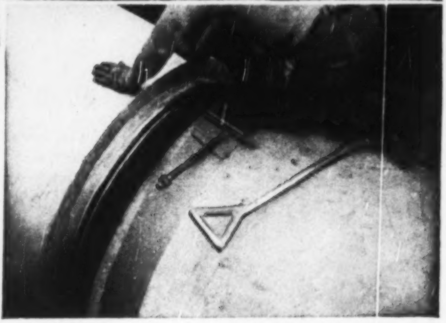


One pull-shovel does excavating and installs 48" Lock Joint Pressure Pipe.

With its exclusive Rubber and Steel Joint, Lock Joint Reinforced Concrete Pressure Pipe is installed rapidly and efficiently in extremes of heat or cold—in wet ditch or dry.

Only one machine is required to make the excavation and install the pipe. No caulking or bolting of the joint is necessary, and the pipe may be back-filled immediately. The Rubber and Steel self-centering expansion joint is flexible to accommodate ground settlement, and is watertight at any internal pressures common to American Water Works practice.

Today, millions of feet of Lock Joint Reinforced Concrete Pressure Pipe, equipped with the Rubber and Steel Joint, installed at low cost and needing little or no maintenance, are giving unfailing service throughout the Western hemisphere.



Rubber and Steel Joint ready to be pushed home.

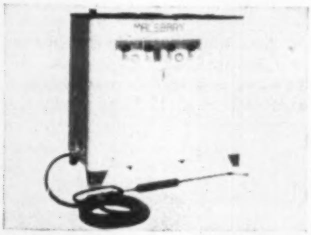
LOCK JOINT PIPE COMPANY
Est. 1905
P.O. Box 269, East Orange, N. J.
PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. Oklahoma City, Okla. • Tulsa, Okla.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

viding necessary flexibility to assure smooth, easy window operation; maintains a constant air seal when sash expands or contracts; sash is easily removed; and metal is cut to pitch of sill, providing an attractive appearance.—ZEGERS, INC., 8090 S. CHICAGO AVE., CHICAGO 17, ILL.



High-Pressure Steam Cleaner

Model 250 uses pressures up to 250 lb to speed steam cleaning. Features include: Automatic thermostat, safety valve, swivel-type gun, compact control and instrument panel, and steam valve for solution stirring. The 250 can be used for steam cleaning, or to produce high-pressure hot or cold water, low-pressure wet steam, and low-pressure warm water.—MALSBURY MFG. CO., 845 NINETY-SECOND AVE., OAKLAND 3, CALIF.

New Product Briefs

Joint-cleaning-machine accessories include: Adjustable third wheel for more accurate control of cutter bite; tire-moistening device to prevent bituminous material from sticking in bumpy layers; and a ⅜-in. steel towing frame that can be attached in 2 min. Maker: G. H. Tennant Co., Minneapolis 11, Minn.

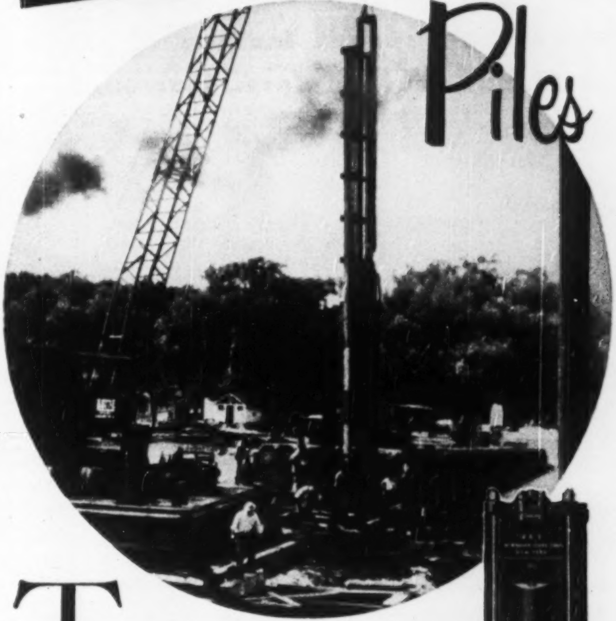
Trigger-Start ballast will handle two standard 20-w fluorescent lamps. It eliminates starters and starter blocks in the fixture. Maker: General Electric Co., Schenectady 5, N. Y.

Crankcase drainer removes oil without hoisting or driving vehicles over a pit. Drain-All is vacuum operated. Oil is drawn through a tube inserted in the oil-measure opening. Maker: K-P Mfg. Co., Minneapolis, Minn.

Ground clamp has a 300-amp capacity. The GC-3 clamp weighs 1¼ lb. and has a 2½-in. jaw spread. Maker: The Lincoln Electric Co., Cleveland 1, Ohio.

Adaptor flange permits conversion from electric motor to gasoline engine as power unit for driving pumps, compressors, generators, etc. Maker: Power Products Corp., Grafton, Wis.

DRIVING 75 FOOT Tubular Piles



THESE 75-foot tapered, fluted, tubular piles with 20-foot extensions were driven to a minimum bearing of 40 tons each by a McKiernan-Terry 10-B-3 Double-Acting Pile Hammer in constructing the new highway bridge at Spring Lake, Michigan. •To insure accurate driving and to protect these long, costly piles from damage during driving, the contractors, Luedtke Engineering Company, chose McKiernan-Terry equipment. For 50 years, whether for driving timber, sheet steel, concrete or pipe piles, contractors have grown to depend upon powerful, safe-to-operate McKiernan-Terry Pile Hammers. •17 sizes of hammers and extractors are available in the complete McKiernan-Terry line. Write for bulletin giving full data.

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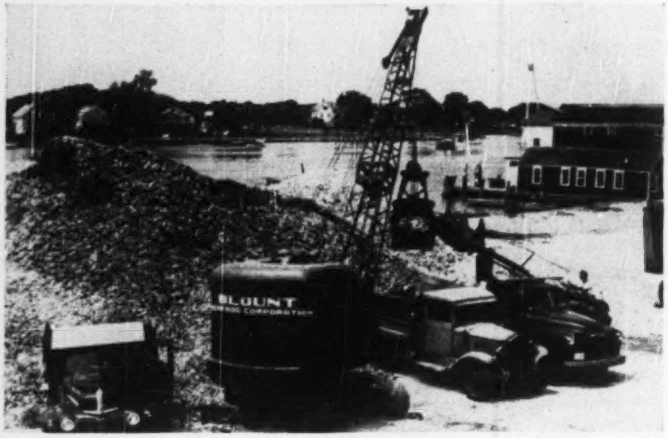
MK-282

OSGOOD

Model 200 speeds loading of shells at Blount Seafood Corp., Warren, R. I.



Here's just one of many out-of-the-ordinary applications for the Osgood Model 200, a machine noted for its versatility. In shell handling efficiency, the Blount plant is one of the best in the country—and a ½-yard Osgood Model 200 Clamshell is hub of the operation. Osgood Model 200—widely recognized for dependability, and for easy accessibility and simplicity of its parts—is adaptable to Shovel, Dragline, Clamshell, Crane and Hoe. Be sure to see Osgood before you buy.

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Hard-Facing Manual—Booklet (40 pp) tells the complete story of hard facing. It tells how to select the proper alloy; which welding process to use; and gives simple, step-by-step instructions for applying various rods. Information is listed on properties and available sizes of 12 Haynes hard-facing materials. — Haynes Stellite Div., Union Carbide & Carbon Corp., 725 S. Lindsay St., Kokomo, Ind.

Oil Seals—Brochure is prepared as a 16-p handbook of useful data on oil seals. Photographs show the use of Clipper Seals and how to install them. Drawings and text describe principle of Clipper Seals, their construction, advantages in various applications, installation data, and other information. —Johns-Manville, 22 E. 40th St., New York 16, N. Y.

Plywood Handbook – Brochure on Weldwood plywood is designed as a handbook and guide for the use of this material. It features a description of many applications of plywood in the construction industry. Thumb index simplifies its use. — United States Plywood Corp., Weldwood Bldg., 55 W. 44th St., New York 18, N. Y.

Corrosion-Resistant Paint—Tygon plastic paint is described in 12-p bulletin 712. This bulletin contains complete information on the use and applications of Tygon, including a description of where and where not to use it. A feature of the bulletin is a corrosion-resistance table. — U. S. Stoneware Co., P. O. Box 350, Akron 9, Ohio.

Gradall Catalog – Illustrated catalog. No. 4903, describes the recently introduced new-model Gradall earthmovers. It describes the machine's operation, lists specifications, and illustrates the Gradall at work on a variety of jobs.—The Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

Diesel Engines—Pamphlet describes the "inside" information on diesel engines used in GMC trucks. Written in the form of an information quiz, the pamphlet answers questions most frequently asked about diesel engines and their component parts.—GMC Truck & Coach Div., General Motors Corp., Pontiac, Mich.

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Power Blockers on the Spot

Stepped-up power needs, which have come as a result of the accelerated preparedness program, have put Truman Administration federal-power advocates on the spot.

For many months past they have blocked the start of work on two widely separated hydro-electric projects that privately-owned electric companies are anxious to build: 1. Development of two sites on the Kings River in California, by the Pacific Gas & Electric Co.; and 2. development of a site at Roanoke Rapids on the Roanoke River in Virginia, by the Virginia Electric and Power Co.

A third undertaking that also has been held up is a proposal by the Fresno Irrigation District to study the possibilities of developing power at Pine Flat Dam on the Kings River, now being built by the Army Engineers. While this latter is not a proposal of a private utility it still would be outside the federal sphere of influence, and so is not favored by the Department of the Interior.

• Power companies ready—If power is as badly needed as the Administration claims, the proponents of these projects want to know why the Interior Department does not withdraw its objections to them. The power companies are prepared to start work at once.

What makes the Interior Department's position embarrassing is the fact that Congress has not authorized it to undertake the Kings River work, and the Roanoke Rapids project is outside of Interior's field of activity. If Roanoke Rapids were to be built by a federal agency that agency would be the Corps of Engineers, and the corps has neither authorization nor funds for the work. So if private development is blocked, neither project can start for an indefinite time.

• The Kings River story—In January, 1948, the Pacific Gas & Electric Co. applied to the Federal Power Commission for a license to develop the two sites in the Kings River and to expand its Balch plant. The Interior Department fought the application actively, claiming that the Kings River work is a logical extension of Interior's Central Valley project in California, now being built by the Bureau of Reclamation. Last November the FPC approved the PG&E application and the related request of the Fresno Irrigation District for a preliminary permit to study the power possibilities at Pine Flat Dam.

Subsequently the Interior Department asked for a rehearing on the FPC approval, and Secretary Chapman appeared personally before the commission in March to argue against granting the PG&E license. The commission has not yet affirmed or reversed its original decision to grant the license.

• The Roanoke Rapids story—Similarly, in October, 1948, the Virginia Electric and Power Co., applied to the FPC for a license to build a $27 million hydro project of 91,000-kw capacity at Roanoke Rapids. And here again the Interior Department protested, holding out for federal development.

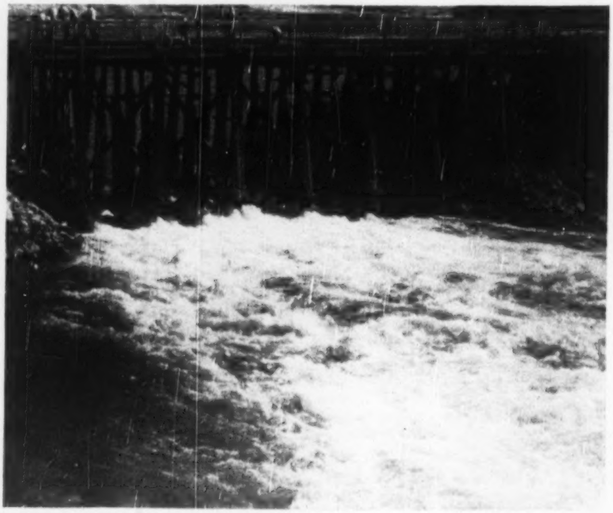
In March, the FPC's chief presiding examiner, Frank A. Hampton, recommended that the application be granted, but in view of the protest, the commission granted the Interior Department a chance to present further evidence in support of its position at reopened hearings. The case is now back before Examiner Hampton.

• Federal work unlikely—When the Federal Power Commission approved private development of the Kings River sites last November it said: "The possibility of federal development of these particular resources is so remote as to negate the proposal for their continued wastage in the expectation that some greater public benefits not now ascertainable may subsequently be obtained."

The PG&E proposes to bring its total capacity on the Kings River to 274,000 kw. The Bureau of Reclamation plans, including acquisition of the Balch plant, total to only 101,500 kw for the same projects. As a result FPC also noted the company's plans call for "more complete development than that proposed by the bureau."

Like comment was made by Examiner Hampton concerning the Roanoke Rapids development. "Here, too, we have extreme improbability of development by the United States of Roanoke Rapids within any early forseeable time together with the availability of private capital anxious to proceed."

Today, while the Administration holds that more power is needed for the expanded defense program, and while the Department of the Interior is seeking authority to undertake more power development to meet that need, private developments that could add 365,000 kw to the country's power resources are held in abeyance due to a whim of the Secretary of the Interior.



WILL WILD WATER BE HARNESSED?—While the nation faces power shortages, federal officials seem to play dog-in-the-manger, blocking private hydroelectric projects that are all set for construction.

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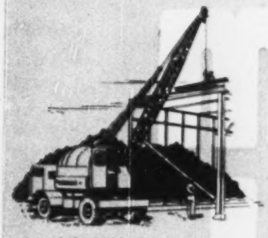

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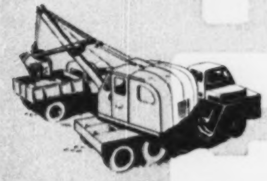

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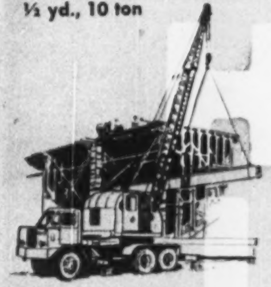

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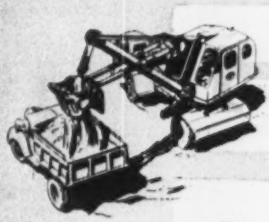

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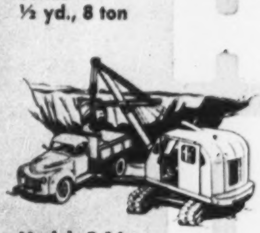

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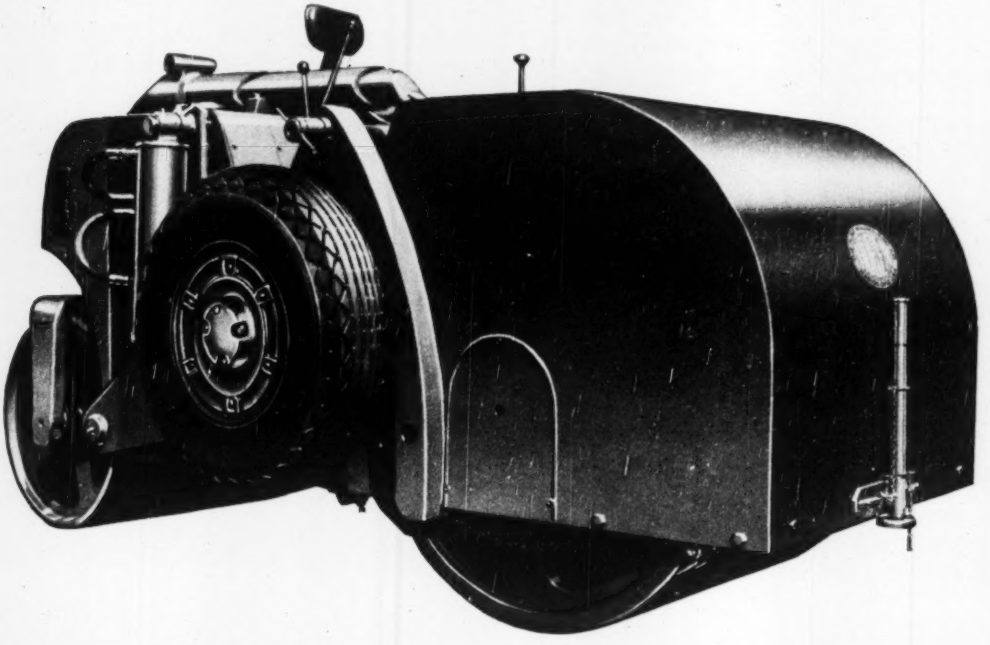

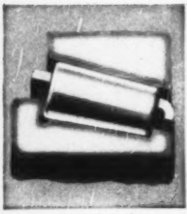

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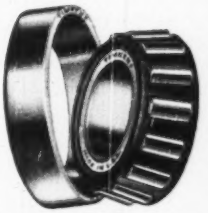

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